Archaeologia Historica Polona
vol. 30, 2022, pp. 281–303, ISSN 1425–3534, DOI: 10.12775/AHP.2022.013

[1] *Institute of Archaeology*
Nicolaus Copernicus University in Toruń
pawelszczepanik@umk.pl
ORCID ID: 0000-0002-0259-0169

[2] *Institute of Archaeology*
Nicolaus Copernicus University in Toruń
makdan@umk.pl
ORCID ID: 0000-0002-1821-4627

[3] *Institute of Archaeology*
Nicolaus Copernicus University in Toruń
wojchud@umk.pl
ORCID ID: 0000-0003-3409-0991

PAWEŁ SZCZEPANIK[1], DANIEL MAKOWIECKI[2], WOJCIECH CHUDZIAK[3]

Horse skulls revisited. Analyses of selected deposits from the territory of Poland*

Abstract. The article presents the most recent study of three horse skulls and bones presented in older publications as early medieval deposits. In the course of the project "Horse in Poland in the Times of the Early Piasts and Internal Fragmentation. An Interdisciplinary Study", they were subjected to multifaceted archaeozoological analyses as well as AMS carbon-^{14}C dating. Owing to the findings of these analyses along with a critical culture-related assessment of the earlier interpretations, the custom of using horse skulls for magical rituals in the Late Medieval and modern times. The custom from the pagan times was still practised in folklore culture and its magical, non-Christian manifestations. The presented results show that dating animal deposits using the AMS ^{14}C method is necessary whenever they become an element of a qualitative-cultural interpretation. They are also an example of the integration of methods and data from various fields of knowledge in studies on the interpretation of associated bone groups created as a result of human activity in the past. Moreover, the considerations contained

* The article was developed as a result of research carried out as part of the project (No. 2017/25/B/HS3/01248) entitled "Horse in Poland in the Early Piasts and Internal Fragmentation" financed by the National Science Centre, Poland. The authors would like to cordially thank for help and for the access granted to the materials for the study and the archival records to Zbigniew Miecznikowski (Museum in Płock), Natalia Wójcik-Dzielnicka and Maciej Trzeciecki (Institute of Archaeology and Ethnology, Polish Academy of Sciences, Szymon Nowaczyk (Archaeological Museum in Biskupin), Paweł Pawlak (Badania Archeologiczne Poznań). Furthermore, we would like to express our gratitude to Joanna Sawicka (Institute of Archaeology and Ethnology, Polish Academy of Sciences), Jan Wiejacki and Mateusz Skrzatek (Institute of Archaeology, Nicolaus Copernicus University in Toruń) for preparing some of the graphic materials.

in this article indicate also that there is an urgent need for revisiting theses that have been long in use in the subject literature.

Keywords: horse deposits, beliefs, radiocarbon chronology, zooarchaeology, taphonomy, Medieval, Post-Medieval, Poland.

Introduction

The role of horses in the pre-Christian beliefs of the Slavs has long been an issue of great interest in archaeology (i.a., Rajewski 1975; Łukaszyk 2012; Kajkowski 2018; Makowiecki, Chudziak *et al.* 2022). In quite many publications, their authors analyse primarily sacrificial/foundation deposits (in Polish – *ofiary zakładzinowe*) (i.a., Hilczer-Kurnatowska 1982; Bajburin 1990; Dalewski 1990; Baron 2012; Wawrzeniuk 2016; Kajkowski 2022). The cited authors considered these to be either complete skeletons or only skulls. Very often, they were interpreted as a result of a ritual activity and considered remains of sacrifice. They served as a basis for identifying the function of a given feature in which they were found. Accepting the accurate assessment of the cultural meaning of skulls and skeletons, it must be admitted that none of the researchers know the scenario of the ritual in the course of which the deposit was done. Therefore, apart from the deposit itself and the archaeological context of its discovery, can we try to find other traces – intermediaries – created during ritual activities? It seems the only way to do so is to integrate several research perspectives (disciplines) with their research methods within one research-analytical package. Using them would allow us to obtain independent data that would complement, verify and control one another, thus forming the most faithful and the most likely scenario of the past ritual. In studies on zoological deposits, the silent witnesses of the old magic practices from archaeological sites, these research perspectives could be archaeozoology, archaeology, paleogenetics, ethnography, folklore, history, religious studies, and AMS ^{14}C dating. Archaeozoology provides biological features such as the sex of animals, age (lifetime), morphological form, and all traces that could be left on bones from the moment when the animal was killed, through the handling of the carcass until it was deposited in its entirety or in parts, up to the moment it was unearthed in the course of excavation studies. Apart from retrieving a deposit, archaeology provides contextual documentation in situ, and on this basis, it points to the function of a given deposit and formulates an initial opinion about the time of deposition. Bone samples are the basis for verifying archaeological dating results using the AMS ^{14}C dating method. The other disciplines provide a set of proxy data that do not stem from the examination of the animal deposit. Humanistic methods, which operate using descriptions of past rituals and magic practices, both historical and folklore-related, will be useful in substantiating and correcting a scenario that arises from archaeozoological and archaeological

source data. In Polish religious studies of the early medieval Slavic period, such an integrated approach as the one applied in this article seems to transgress the previous methodological standards in how archaeologists and historians examine or, specifically, interpret animal sacrifice. It must also be stressed that it was the findings of the archaeozoological studies carried out as part of the project dedicated to the history of the horse in the Piast era and the fragmentation of Poland that became the foundation for the research conducted in this paper. This pertains to three horse skulls and partial associated bone group of two horses. These were discovered in Biskupin, Płock, and Dąbrówka. They were all subjected to analyses and interpretation that pointed to their magical meaning (Fig. 1) (Rajewski, Maciejewski 1957; Rajewski 1975, p. 517), Płock (Szafrański 1983; *Płock* 2011), and Dąbrówka (*Dwa grody* 2019).

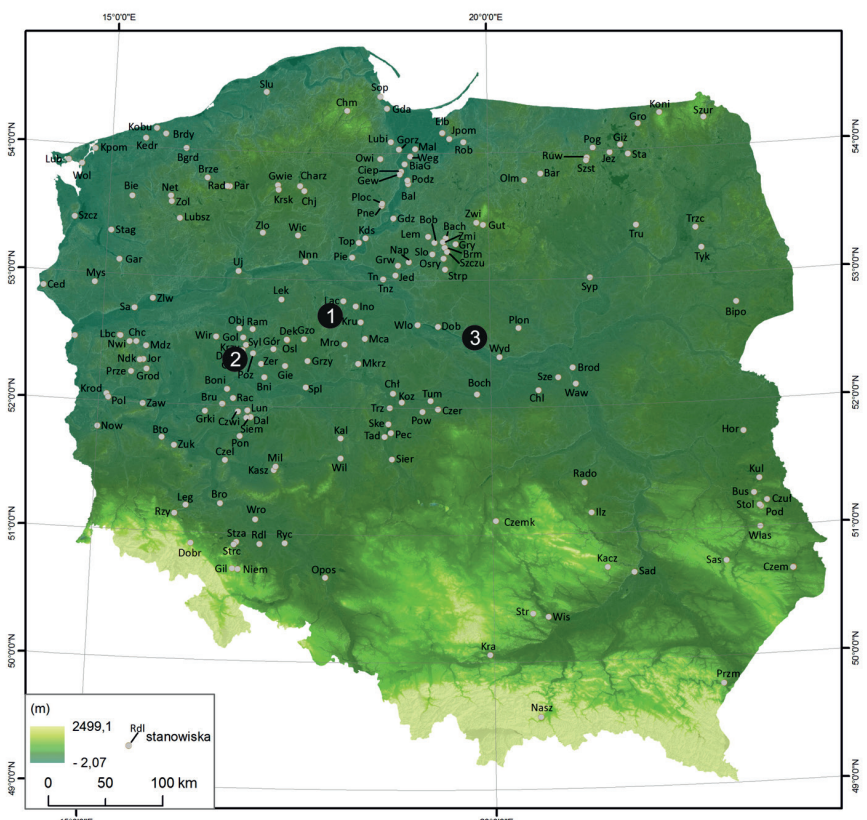


Fig. 1. Map of the sites with horse remains from medieval sites analysed in the project. Sites with the deposits discussed in detail in the article: 1 – Biskupin, Żnin district; 2 – Dąbrówka, Poznań district; 3 – Płock, Płock district (developed by M. Skrzatek and P. Szczepanik)

Presentation of the material

The first of the analysed deposits was excavated in Biskupin (site 15). According to first interpretations, it was located near a source of crystal-clear water (Rajewski, Maciejewski 1957; Rajewski 1975, p. 517). It was said to include four horse skulls (Rajewski, Maciejewski 1957, p. 235). However, of these, only two were preserved in the collection of the Biskupin Museum. According to the documentation made in the course of the excavation works, these could include two skulls and one mandible in two separate parts (Fig. 2).

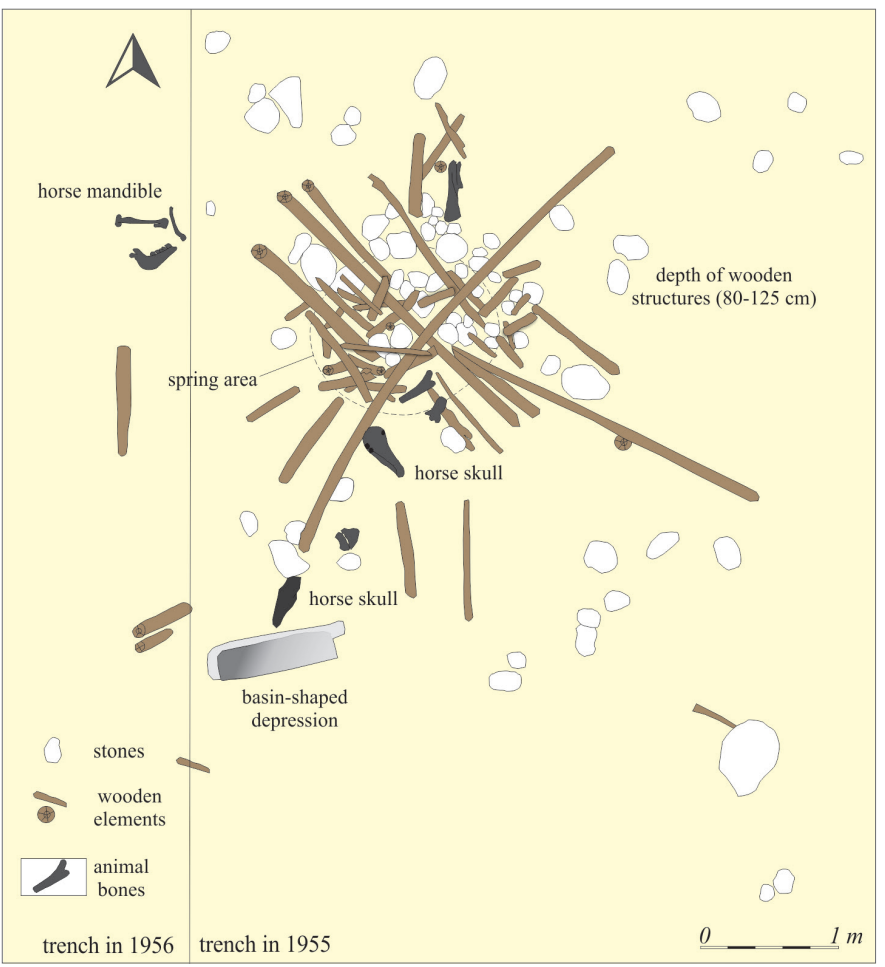


Fig. 2. Biskupin, Żnin district. The source with the relics of the well and the place where the horse skulls were unearthed (after Rajewski, Maciejewski 1957, p. 239, Fig. 5; drawing by J. Sawicka)

In the very beginning, the place of the skull discovery was regarded as a spring of water utilised from the Neolithic through the subsequent periods until the turn of the 18th century (Rajewski, Maciejewski 1957, pp. 239–242). In the Hallstatt and the La Tene periods, the access to water was facilitated by the cobblestones around it, whereas from the 12th century to the 18th century, water was drawn from a well laid with bricks. Around the source and in its vicinity, numerous horse bones were found, including the mentioned four skulls, long bones, ribs, and vertebrae. They were deposited on various levels (Rajewski, Maciejewski 1957, p. 235). The animal remains were accompanied by fragments of pottery from the turn of the 13th century, an iron arrowhead[1], biconical spindle whorl and a bronze sheet, also dated back to the turn of that century. One of the items dated back to the turn of the 18th century was a wooden bowl, an iron ring, and a fragment of a scythe blade (Rajewski, Maciejewski 1957, pp. 241–242).

Of the two skulls investigated in the course of the project, the former belonged to a 9–10-year-old mare (Fig. 3). On the surface of the right nasal bone, oblique scratchers were observed (Fig. 4). The other skull belonged to a mare at the age between 3 and 3,5 years (Fig. 5). On the nasal bones, numerous scratchers/cuts were recorded, mostly oblique, of a similar appearance on both sides of the bone. Similar ones, albeit longer, were found on the left frontal bone, including longitudinal and oblique ones that were overlapping (Fig. 6).

These described unnatural marks suggest that the horses' heads were not deposited with the bodies but were separated from the necks of the animals. This was followed by the removal of soft tissues such as the skin, muscles and tendons. It was only after these stages had been completed that they were deposited in the space near the water source as a type of intentional specimens/props.

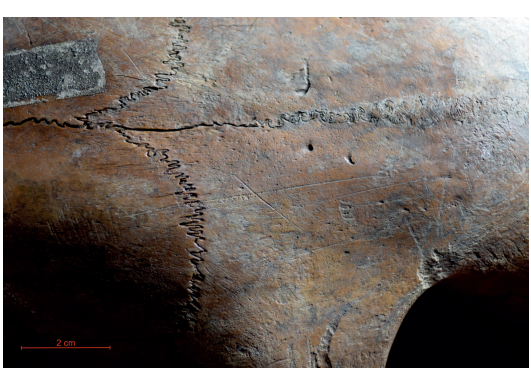
Another examined skull was found at Ostrów Tumski in Płock during an excavation conducted in the abbey courtyard (Szafrański 1983; *Płock* 2011). The oldest traces of human presence at this site come from the early Iron Age (750–400 BP). These take the form of, among others, fragments of pottery and a collection (hoard) of bronze objects with an allegedly votive meaning (Szafrański 1983, p. 155; about the hoard, cf.: Trzeciecki 2011, pp. 58–59 – for further literature). The horse skull was found in a complex of features identified as a pagan sacred spot (in Polish – uroczysko pogańskie). Allegedly, it comprised a number of fireplaces, a stone altar nearby which a skull of a young girl was unearthed (cf. below), a chicken pen, as well as a stone mace and a phallic object made of antler (Szafrański 1983, pp. 139–154). The set of the analysed features included a pit identified by researchers as either

[1] According to Zdzisław Rajewski and Franciszek Maciejewski, the artefact can be dated back to the turn of the 13th century or the turn of the 18th century (Rajewski. Maciejewski 1957, p. 242). The arrowhead was dated to the Early Middle Ages by Andrzej Nadolski. We would like to thank Ryszard Kaźmierczak and Paweł Kucypera, who also point to a similar chronology, for consultations in this respect.

▲ Fig. 3.
Biskupin, Żnin district. The skull of the mare at the age of 9–10 years (photo by J. Wiejacki)

◀ Fig. 4.
Biskupin, Żnin district. The skull of the mare at the age of 9–10 years. Traces of scratchers/cuts on nasal bone (photo by J. Wiejacki)

▲ Fig. 5.
Biskupin, Żnin district. The skull of the mare at the age of 3–3.5 years (photo by J. Wiejacki)



◀ Fig. 6.
Biskupin, Żnin district. The skull of the mare at the age of 3–3.5 years. Traces of scratchers/cuts on the nasal bones (photo by J. Wiejacki)

a sacrificial candle or a pit larger than the other ones. According to Włodzimiesz Szafrański (1983, p. 150) "on the bottom, there is a fireplace arranged using field-stones, which (along with its eccentric situation) makes it clearly stand out from the compact set of candles, similar more to the smoking pit unearthed in the settlement outside the walls at the foot of the bulwark. This gives rise to a suspicion that most likely, in its immediate vicinity, there was a house where the cult officer lived, the mage who also practised blacksmithing". In this feature, a horse skull was sacrificed on stones. Based on a photograph included in W. Szafrański's publication, it was concluded that the skull was placed *in situ* on its right side, though upside down, the occiput resting against the wall of the pit, while part of the mouth was directed towards the inside of the pit (Fig. 7) (Szafrański 1983, p. 143).

It belonged to a male at the age of 11–13 years. The surface of the skull is smooth and bears no traces of weathering, scratchers or negatives of sharp implements. Minor negatives of bone splinters visible on the occipital condyles are recent enough to be linked with secondary damage caused during the excavation (Fig. 8).

The presence of only the skull suggests that the head was separated from the body after the killing. The absence of any traces on the surface of the skull shows that in this case, an entire head was placed in the pit, unprocessed. Then, it was

Fig. 7.
Płock, Płock district. The object with the discussed horse skull (Archives of Institute Archaeology and Ethnology PAN)

Fig. 8. Płock, Płock district. The skull of the male at the age of 11–13 years (photo by Z. Miecznikowski; developed by J. Wiejacki)

covered with earth sediment, which cut off the air, thus making it impossible for traces of weathering or predator activity to form on it. The latter were well-documented for other skulls, such as those from Gdańsk (Makowiecki, Wiejacka 2023, p. 118). The Płock skull bears no traces of fire, either. Nonetheless, it cannot be ruled out that the soft tissues were removed by boiling the head. This preparation method would leave no traces of skinning-related mechanical activity. No traces of abrasion on the occlusal surface in the mesial part were recorded on the second

premolar – P2, apart from the rostral hook resulting from dental dysfunction. However, a small abrasion was recorded only in the tip areas (the apexes of the canine teeth). Degenerative lesions visible on the external occipital protuberance (Fig. 9) show that the horse used to work its neck intense enough to cause the attachments of the nuchal ligament to develop inflammation.

The last deposit subjected to re-evaluation specified in archaeozoological literature as a partial associated bone group (Morris 2012) comes from two horses and

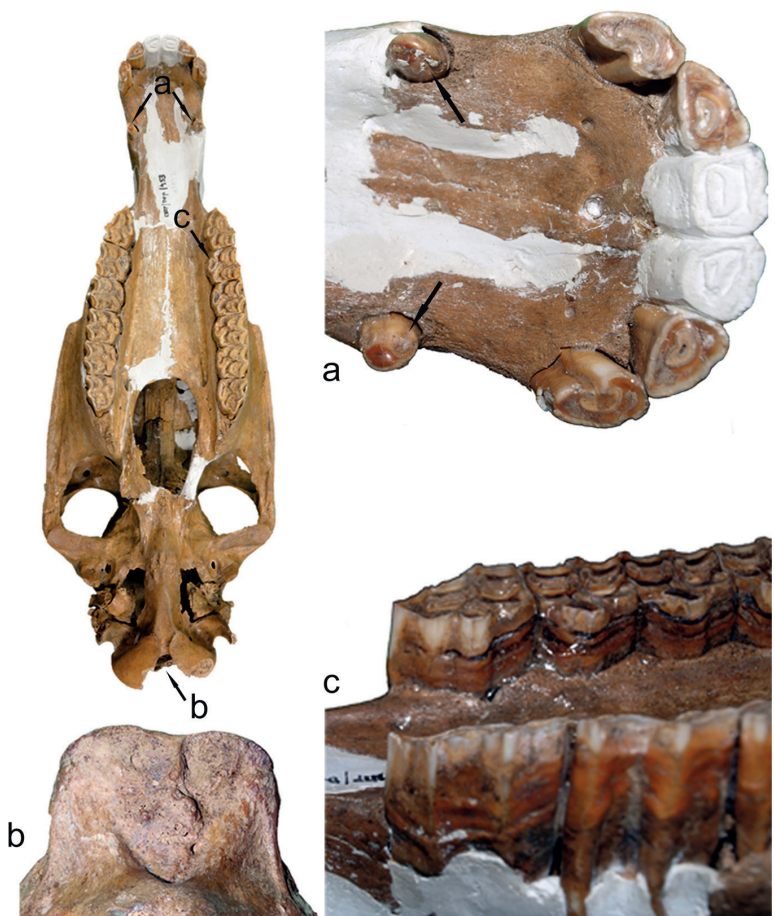


Fig. 9. Płock, Płock district. Pathological changes of the skull bones: a – the apexes of the canine teeth with small abrasion; b – degenerative lesions visible on the external occipital protuberance; c – dental dysfunction on second premolar P2 (photo by D. Makowiecki)

Fig. 10. Dąbrówka, Poznań district. The horse skull deposit unearthed in the dwelling building (after Pawlak, Pawlak 2019, p. 167, Fig. 9.1)

was discovered in the stronghold in Dąbrówka (*Dwa grody* 2019). It was recorded at a feature identified as a dwelling building (Fig. 10).

The bone group was situated in the central part of a rectangular depression interpreted as a small cellar (Pawlak, Pawlak 2019, p. 168). Moreover, a single tooth from yet another individual was found (Makowiecki 2019; Makowiecki, Wiejacka 2023). The skulls were oriented in the north–south axis. They were lying next to each other, facing opposite directions. The male was positioned horizontally, his muzzle to the north, the lower part of the skull touching the ground. The mare's skull was in a slightly oblique position, her muzzle oriented to the south, the right premolars and molars situated on the zygomatic arch of the male's skull. The mare's mandible was lying on the male's skull. Above the male's skull in its frontal part (near the muzzle) the mare's pelvic bone was located, lying between both skulls. North of the mare's skull, in the vicinity of the occiput, cervical vertebrae were located, one of which was the axis (the second cervical vertebra)[2].

[2] The description of the arrangement of the deposit elements was made based on photographs (Fig. 8); the photographs did not show other bones which were documented during identification.

The associated bone group of the mare comprised the skull, mandible, vertebra of the cervical spine and the left pelvic bone. The animal lived for about 17–18 years. The ischium bears visible bite marks of a predator (probably a dog). Despite numerous damages that occurred during excavation, the state of preservation of the skull was good enough for it to be gluedtogether from numerous pieces during laboratory works (Fig. 11).

The remains of the male, aged about four years were represented solely by a whole skull (Makowiecki 2019, p. 426). It was damaged – broken into many pieces to the point that it was impossible to reconstruct. Using traditional dating methods based on analysing fragments of vessels present in the pit that contained horse bones and based on the stratigraphic context the entire assemblage was dated to the mid-9th/first half of the 10th century (Pawlak, Pawlak 2019).

Stratigraphic and functional contexts and the dating of horse deposits

The skulls from Biskupin were classified as early-medieval already in the course of the excavation and, consequently, included into finds that are an archaeological confirmation of the horse cult among the Slavs (Rajewski 1975, p. 517). In another publication that addresses the interpreting of finds from aquatic zones, the time of the horse skulls deposition in Biskupin was specified as the 6th–14th century (Rajewski 1974). They were also described as follows, "cobblestones aside, ceramics, bone and antler tools, stone and iron tools, animal bones, horse skulls and poles to which horse heads were attached [emphasized by the authors] were identified. The presence of half-burned wood pieces proves that torches were in use, whereas about a dozen of wood pieces of varying length indicates that divination took place at the spring" (Rajewski 1974, p. 113). Most likely, this suggestive interpretation was inspired by 12th-century mentions of divination ceremonies involving horses. They took place at temples and sacred groves of Pomeranian and Polabian Slavs (*Helmold*, II, 108; *Thietmar*, VI, 24–25). The strong relationship of the horse in divination has been well-recorded in historical, folklore and linguistic sources as well (Słupecki 2003). For this reason, the accuracy of the interpretation that explains the assemblage of findings in Biskupin raised little doubt among researchers. When the discovery of skulls was made, radiocarbon dating was not applied in the archaeology of the Middle Ages, as the measurement error obtained with the equipment in use at that time was too large. Nonetheless, the present-day ^{14}C dating technology is precise enough to be used successfully (Chudziak *et al.* 2010, p. 112; Chudziak, Kaźmierczak 2014, pp. 24–25). For this reason, during the project mentioned in the introduction, dating these associated bone groups of the horse that used to form specific cultural values in the history of the Slavs has become the guiding principle. Therefore, the skulls from the deposits in question were subjected to dating, too (Makowiecki, Wiejacka 2023).

Fig. 11. Dąbrówka, Poznań district. The skull of the mare at the age of 17–18 years (photo by P. Pawlak; developed by J. Wiejacki)

In the case of the skulls from Biskupin, the measurement of decaying ^{14}C isotope by means of AMS showed that they were deposited between the years 1490 and 1649 AD (95.4%) (Table 1). Likewise, the sample taken from the other skull yielded a result that points to the years 146–1635 AD (95.4%). Therefore, this chronology of the deposits directly indicates the younger stage of use of the water spring, which

fit in the post-medieval times with a slight margin at the end of the Middle Ages. Given this dating, it should be ruled out that the skulls are connected to the early medieval ritual activity. Hence, the theses created by Rajewski and accepted by the generations of archaeologists that followed, particularly the one concerning the time that magical ceremonies involving horse skulls were taking place, proved untrue.

The existence of the so-called pagan sacred site (in Polish – *uroczysko*) in Płock in the concept proposed by Szafrański was critically evaluated several times (Dulinicz, Ościłowski 2008, p. 185; Trzeciecki 2011, pp. 63–70). According to the cited authors, the shape of the feature that the skull was unearthed in could be "a result of a robust pole pulled out from it, which was tilted in various directions. It can be also interpreted as a utility pit" (Dulinicz, Ościłowski 2008, p. 185). In various studies, this object is identified as a waste pit, as evidenced by the numerous bones and fragments of ceramic vessels discovered there (Trzeciecki 2011, p. 70). A more precise assessment of the function played by the pit seems to be hindered since, as one can see in the photographs that show the skull *in situ* (Fig. 6), apparently, the pit has not been explored in its entirety. Additionally, the position of the skull – as described above, that is, turned "upside down" – cannot be a sign that it was placed in the pit intentionally but rather abandoned by chance or redeposited from somewhere else.

Another premise negating the original concept of the pagan *uroczysko* was provided by a ^{14}C dating obtained for a sample taken from the skull. It showed that it was deposited in 1302–1412 AD (95.4%), which indisputably rules out the possibility that the horse was linked to early medieval ritual activities. A sample from the little girl's skull was also taken for radiocarbon dating purposes to obtain a wider chronological overview of the elements of the alleged *uroczysko*. In this case, it turned out that the skull can be directly connected to pre-Christian times, since the obtained data was between 771 and 893 AD (87.4%)[3]. Such divergent chronology as that of these two elements seems to indisputably rule out the possibility that the little girl's skull could be interpreted as originating from a grave situated at the cemetery by the church (Dulinicz, Ościłowski 2008, p. 186). In light of the above chronological data, it is even more justified to reject the original concept of the "Płock wilderness (*uroczysko*)" as reliable. It should be agreed that it was a kind of literary-interpretive construct, which some researchers already indicated without the methods of chronological valorisation of both skulls used here (Gołembnik 1999; Trzeciecki 2011, p. 70).

Findings just as surprising were provided by the dating results obtained for the skulls from Dąbrówka, Greater Poland. In both cases, samples were taken for

[3] The analysis of the dating results did not consider extreme frames of chronology. This is because the probability of 95.4% rendered this timeframe quite wide, spanning from 704 to 941 AD.

radiocarbon dating. The chronology for the mare was determined as 1513–1799 AD (95.4%), whereas that of the male as 1461–1636 AD (95.4%). Considering the fact that the two skulls formed a very concise assemblage, situated side by side, heads oriented in opposite directions, with a high likelihood, the lifetime and the deposition time for the two animals can be narrowed down to the years 1513–1636 AD. Therefore, given this chronology, the thesis that links the associated bone groups of the horses with pre-Christian ritual activity should be completely abandoned (Pawlak, Pawlak 2019, pp. 168–171). On the other hand, it should be noted that even the clear stratigraphic layout that shows no secondary disturbances is not a good enough reason for dating this animal deposit using solely archaeological methods[4]. In this case, one should rather conclude that the remains of both horses, placed next to each other, although without anatomical order, including only some elements of their skeletons, reflect the complex origin of the horse burying activity, possibly ritual/magic. It may have consisted of several stages during which predators may gain access to the carcass because traces of predator teeth have been found on the pelvic bone.

The horse in magic and folklore

The outstanding accounts considering horses featured in 12th-century chronicles by Helmold (II, 108) and Thietmar (VI, 24–25) inspired many authors to explain the meaning behind the deposited skulls and skeletons of this species in the pre-Christian cult and beliefs of the Slavs (Matusiak 1911; Słupecki 2003; Łukaszyk 2012; Szczepanik 2020; Makowiecki *et al.* 2022). The mentioned chroniclers give accounts of the presence of the horse in temples in Pomerania and Polabian territory, as well as the high magical status these animals enjoyed in divination. In the descriptions from Herbord's chronicle (*Herbord*, II, 23) these practices involved a black horse kept at the temple of Triglavin Szczecin. Svarožic's sacred horse from Rethra appears in the pages of Thietmar's chronicle (*Thietmar*, VI, 24), while a palfrey of white colour of Sventovit of Arkona is mentioned in a work by Saxo Grammaticus (XIV, 39). All these chronicle records provide descriptions of early medieval traditional pagan rituals, most likely dating back to times preceding the mentioned historical data. From the viewpoint of the radiocarbon dating results obtained for the horse skulls and the partly associated bone groups whose archaeological contexts are described above, it seems valid to put forward a thesis that the magic meaning of the horse known and practised in the pagan times has

[4] In a friendly discourse with the finders, they pointed to the absence of any traces that could suggest that the original stratigraphic order has been disrupted.

been preserved and continued in fully-fledged structures of the Christian religion at least until the 17th century.

The archaeological manifestations of this phenomenon are supported by ethnographic accounts from the beginning of the 20th century. According to some information, the divination had the following course. A specific object was placed on the ground, be it a pole, a rod or elements of horse harness such as *duha* or *hołuby*, which was then overstepped by a horse. If the obstacle was knocked by a hoof, this was considered an ill omen, while if the animal stepped over the item without touching it, this was considered to augur well (Moszyński 1929, p. 131). This course of the ritual is largely identical to the one practiced in the pagan temples of West Slavs. Referring to findings made by A. Tereščenka, the cited author states that "divination of this kind was allegedly known in the first half of the 19th century in all Rus' countries and in Poland, and also in Lithuania" (Moszyński 1934, p. 413). A somewhat different version of divination was practised in Volhynia, where maidens rode a horse with its eyes covered, and the direction the animal took was supposed to show the way they would take once married. Used for similar divination events, albeit in Siberia, the horse was supposed to be of white coat colour (Moszyński 1934, p. 414). This species appears also in yet another divination context, specifically, in the areas of the middle Volga and the lower Kama. It was used for choosing the place where a sacred grove was planned to be located. "When due to these or other reasons (e.g., when founding a new settlement), a need for choosing a grove for a sacred site arose, then the shaman – fortune-teller would mount a young horse bereft of any reins and let it take him into the forest without driving it. Wherever the horse stopped, the place was intended to be used as a grove" (Moszyński 1934, p. 250).

Owing to ethnographic data it is known that horses' behaviour was believed to identify diseases or foretell death. The belief that in certain circumstances, horse whinnying augurs badly was a common phenomenon among the Polish people. An unfailing harbinger of death was pawing the ground by horses that brought a priest with sacraments to an ill person (Biegeleisen 1930, p. 11). Furthermore, the Mazurian folk allegedly believed that whoever a horse that draws a dead person looks at must die (Biegeleisen 1929a, p. 420).

This animal had also a healing power, as evidenced by an account from Huta Drohobycka that addresses a person suffering from typhus. In the case of this disease, a horse was taken into a room to confirm the diagnosis by whinnying. Once it was confirmed, the animal was left with the ill person for a day, while "the faeces produced by the horse in the cottage were put on the ill person's head, and he was washed with the horse's urine" (Udziela 1905, p. 397). When it comes towarding off fever, inhabitants of Pokuttia 'fumed' themselves with burned horse hoofs; men were said to use mares' hoofs to this end, whereas women were said to apply males' (probably a stallion's) hoofs (Biegeleisen 1929b, p. 328).

Therefore, horses were quite tightly related to religion and magic, while their body parts played an extremely important role in curse removal, fighting demons, or treating diseases in people but also in cattle (Biegeleisen 1929a, p. 421). Parts of the horse body could also cause a malady or even death. A horse skull, the so-called *kobyli łeb* was said to be the most dreadful means of causing death or severe illness. In order for it to fulfil its role, it had to be buried at the enemy's house, which undoubtedly was not an easy task given its size (Baranowski 1963, pp. 179–180). Hence, just as remains of deceased people, a horse head, particularly the skull, has the power to bring prosperity, heal, and foretell the future; on the other hand, it can be employed for causing illness or death. Horse heads and, most likely, their skulls, were the hallmark of thieves in Lesser Poland. They used to hang them on fences both as a distinctive mark and also for protection. To ensure a bountiful harvest, a horse skull was impaled on a pole placed in a field (Biegeleisen 1929b, p. 351; Łukaszyk 2012, pp. 56–57). An individual example of the use of skulls comes from the materials from Polesie, where in the course of rites held to celebrate the day of the summer solstice (in Polish – *Noc Kupały; Noc Świętojańska*), a skull or a head of a horse was hung on a pole decorated with herbs; it could also be a skull of a cow. Such skulls were burned in fire and the ashes left were then tossed into water, preferably flowing (Moszyński 1929–1930, p. 77). It is worth stressing that the bones used for this purpose allegedly came from animals that had died as a result of disease, and that the ritual was intended to drive the disease away and ensure good health for the living animals (Moszyński 1929–1930, p. 80). Magical practices consisting in throwing horse skulls into fire were also known in Ireland and Germany (Moszyński 1929–1930, p. 81). The use of skulls in magical acts has been confirmed in medieval and post-medieval Europe, usually with a primary focus on their protective qualities (Hoggard 2004, pp. 177–181; Hukantaival 2009, pp. 354–355). The same function of skulls is also supported by Slavic folklore (Biegeleisen 1929a, p. 422). It was believed that the custom of hanging horse skulls and heads on poles to protect all buildings and wealth against evil spells reaches back to the ancient times.

The magical power of a horse skull was used not only by displaying it noticeably, but also by utilizing its properties in concocting medicine. It was considered a method for alleviating fatigue to take a bath as follows: "In the evening, one draws a bucketful of rainwater, in silence and without looking around, and pours it into a wash tub; a horse head is soaked in the water from sunrise to sunset and a child is bathed in it, his shirt then torn in two. Lastly, the water and the short are put back into the hole, again, without saying anything and without looking around" (Biegeleisen 1929a, p. 369). All of the presented ethnographic materials show multiple cultural and magical roles that horse heads played, both in the sense of part of the horse body and the skull as an element of the skeleton.

Archaeological materials from the viewpoint of historical data and ethnographic/folklore data

Given the information on the context in which the horse deposits in Biskupin, Płock, and Dąbrówka were discovered, as well as their dating results, two conclusions are reasonable. The first one rejects the early medieval metrics of the activities that resulted in these deposits. The other one shows that such activities took place a few centuries earlier. The cited folklore data seem to confirm that they were performed in line with the magical practice in use in the post-Medieval times. Elements of such practices included, as in the case of the early Middle Ages, skulls (Płock), horse heads (Biskupin), and entire bodies or parts thereof (Dąbrówka), deposited in specific archaeological spaces. As for the Biskupin skulls, the incisions recorded on their surfaces were deemed marks indicative of several different stages of the magical activities that led to the deposition of the skull and not an entire head. Considering that the water drawn from the spring could not have been the cause of illness and, at the same time, it was supposedly protected from germs, the deposition of the prepared clean preparations seems to be an activity both magical or practical. This deposition ritual can also be interpreted as intending to strengthen the power of the water from the spring, which would take on healing properties owing to the protective power of the horse skull. If it was not a skull but a head with all soft tissues that were placed in the water source/well, then we would be rather speaking about an attempt to poison this water source (Biermann 2006, pp. 68–69). Here, once again, we can refer to K. Moszyński's ethnographical records, according to whom "the sacrifice", tossed to various springs, wells, rivers, and seas, was quite numerous; that is, it was never celebrated without significant, valuable offerings – particularly not in the Great Rus – horses and other domestic animals were drowned, etc. In some places they were sacrificed on a yearly basis" (Moszyński 1934, p. 512).

It is more difficult to give the other above-discussed deposits a cultural/magical meaning. The example from Płock is quite peculiar, since in the feature dated back to the early Middle Ages, the skull was deposited in the time span of 14th–early 15th century. Perhaps it was a magical practice, including a sacrificial/foundation deposit, protecting the inhabitants of the Tumskie Hill at that time. Likewise, it cannot be ruled out the horse head was offered with malicious intent to bring bad luck. Since in the case of archaeological data, determining the motif is sadly impossible, both these mutually exclusive scenarios should be considered equally possible. Nonetheless, one could venture to claim that positive or negative valuation of the Płock hill by means of magical items, both of human and animal origin, has a long history dating back to the time before the foundation of the stronghold.

As for interpreting the materials from Dąbrówka, the use of ethnographic sources seems most fully reasonable. The described deposit is a peculiar form of a horse

burial in a place that back at the turn of the 17th century could be considered by the inhabitants of Dąbrówka village to be extraordinary, shrouded in mystery of the old stronghold. This made this location nothing less but ideal for practices not thoroughly aligned with the teachings of the Church. Such peculiar burials appear yet again in K. Moszyński's study (1934, pp. 564–565), who cites N. Ivanicki, "In the summer of 1890, the ethnographer says, while sauntering near Kadnikow, I noticed a flat, empty space by the road, scantly covered with grass, a fence made of poles, rectangular in plan, over 3 m long and about 2 m wide, with enclosed sleigh lying with its runners up. It turned out that below the sleigh, there was a horse under the ground. As studies and interviews explain, in many areas of the district, horses are buried in a similar manner, though not all; only those that were ridden. If such a mount dies, the owner lays it on a sleigh (though it was summer) and drives it away like a dead man, head towards the back, into the field, and buries it by a road; the man than puts the sleigh upside-down on the grave and encloses it with a fence. Albeit new, the sleigh will remain forever untouched and rot apart on the spot". This extraordinarily vibrant description of a horse burial contains many valuable bits of information and, perhaps, could make it easier for us to understand the Dąbrówka deposit. According to the finders, the manner in which the remains were resting suggested that they had been deposited in some kind of a chest or a container and then put away in a small cellar (Pawlak, Pawlak 2019, p. 168). Therefore, the chest in question could be the remains of a container in which the remains were transported to the stronghold and then deposited inside the early medieval structure. This hypothetical interpretation seems to be supported also by the results of taphonomic analyses. They show that at least some of the bones bear bite marks, meaning that at least for some time, the carcasses of dead animals remained bare and unburied. This conclusion makes it impossible to consider this deposit a sacrificial/foundation deposit. None of the arguments provided here rule out the ritual origin of the deposit. Nonetheless, it should be perceived as a manifestation of not pre-Christian beliefs but that of the high emotionally-charged status that specific horses enjoyed. That would be, at the same time, the use of equine carcasses to prevent the spread of diseases due to germs that appear when a dead body decays. This reason is the most pragmatic argument for choosing to bury dead animals in a peculiar, desolate and forgotten place that the old stronghold was.

Summary

The analyses of the materials considered in previous publications a manifestation of pre-Christian magical practices, this time conducted based on methods and premises founded on several research perspectives revealed scenarios involving equine carcasses that are much more comprehensive. The analysis provided a negative

verification of their chronology. Instead of the expected early medieval chronology, the materials proved to be intermediaries informing of the ritual practices and beliefs of the late medieval and post-medieval times. Therefore, it turned out that most likely, they were part of folklore and medieval magic. However, they were not a direct follow-up of pre-Christian beliefs, but solely their components, albeit still alive. By means of the three investigated cases, three different origins were presented. The first one, from Biskupin, can be linked to the medicinal and protective properties of horse skulls. The second one, from Płock, constitutes a manifestation of magic intended to protect or to bring bad luck. The third one, from Dąbrówka, should be interpreted as a burial intentionally situated in a secluded location of the past stronghold. The authors of this paper hope that future studies attempting to explain the meaning of animal deposits adopt ^{14}C dating of such deposits as the starting point. The findings obtained herein should also bring the attention of experts handling matters of the religion of the Slavs to the necessity of using integrated rules for inference always when the source involves deposits obtained by the man from the animal world. This is because they contain natural data that can be deciphered only by means of applying cutting-edge methodological solutions both in bio-archaeology in a broad sense and the humanities.

Table 1. Results of calibration of ^{14}C dates of the horse skulls discussed in the text. The calibration was made with the OxCal software

Site – sample	BP	68.3% probability	95.4% probability
Biskupin – EQ_ BIS15a_01	310 ±30	1520AD (54.2%) 1586AD; 1623AD (14.1%) 1641AD	1490AD (95.4%) 1649AD
Biskupin – EQ_ BIS15a_02	360 ±30	1472AD (35.6%) 1521AD; 1578AD (32.7%) 1624AD	1456AD (45.5%) 1529AD;1540AD (50.0%) 1635AD
Płock – EQ_ PłU_01	590 ±30	1319AD (52.4%) 1359AD; 1389AD (15.9%) 1403AD	1302AD (69.1%) 1369AD; 1380AD (26.4%) 1412AD
Dąbrówka – EQ_ DA2_07	350 ±30	1479AD (30.2%) 1523AD;1573AD (38.0%) 1629AD	1461AD (39.7%) 1530AD; 1539AD (55.7%) 1636AD

References

Bajburin A., 1990, *W sprawie opisu struktury słowiańskiego rytuału budowniczego*, Polska Sztuka Ludowa. Konteksty, vol. 44/3, pp. 62–69.

Baranowski B., 1963, *O hultajach, wiedźmach i wszetecznicach. Szkice z obyczajów XVII i XVIII wieku*, Łódź.

Baron J., 2007, *Studies on prehistoric religion in polish archaeology*, Sprawozdania Archeologiczne, vol. 61, pp. 419–436.

Baron J., 2012, *Ritual and cultural change. Transformations in rituals at the junction of pagan religion and Christianity in early medieval Poland*, [in:] *Rytm przemian kulturowych w pradziejach i* średniowieczu, ed. T. Gralak, Biskupin, pp. 449–464.

Biegeleisen H.,1929a, *U kolebki, przed ołtarzem, nad mogiłą*, Lwów.

Biegeleisen H., 1929b, *Lecznictwo ludu polskiego*, Kraków.

Biegeleisen H., 1930, *Śmierć w obrzędach, zwyczajach i wierzeniach ludu polskiego*, Warszawa.

Biermann F., 2006, *Sypniewo. Ein frühmittelalterlicher Burg-Siedlung komplex in Nordmasowien*, Archeologia Mazowsza i Podlasia. Studia i materiały, vol. 4, Warszawa.

Chudziak W., Bojarski J., Stawska V., 2010, *Chronologia cmentarzyska*, [in:] *Wczesnośredniowieczne cmentarzysko szkieletowe w Kałdusie (stanowisko 4)*, *Mons Sancti Laurentii*, vol. 5, ed. W. Chudziak, Toruń, pp. 105–120.

Chudziak W., Kaźmierczak R., 2014, *Chronology*, [in:] *The Island in* Żółte *on Lake Zarańskie. Early medieval gateway into West Pomerania*, eds. W. Chudziak, R. Kaźmierczak, Toruń, pp. 17–25.

Dalewski Z., 1999, *Zakładziny: obrzęd i mit. O słowiańskich zwyczajach i wierzeniach związanych z budową domu i zakładaniem miasta*, Polska Sztuka Ludowa, vol. 44/4, pp. 17–24.

Dulinicz M., Ościłowski J., 2008, *Co Włodzimierz Szafrański odkrył na dziedzińcu dawnego opactwa benedyktyńskiego w Płocku?*, [in:] *Przez granice czasu. Księga jubileuszowa poświęcona Jerzemu Gąssowskiemu*, eds. A. Buko, W. Duczko, Pułtusk, pp. 177–190, 567–569.

Dwa grody, 2019, *Dwa grody nad Wirynką. Dąbrówka, stanowiska 1 i 2, woj. wielkopolskie*, Bibliotheca Fontes Archaeologici Posnanienses, vol. 25, eds. M. Szmyt, P. Pawlak, Poznań.

Gołembnik A., 1999, *Początki Płocka – mity i rzeczywistość*, Slavia Antiqua, vol. 40, pp. 69–95.

Helmold, 1974, *Helmolda Kronika Słowian*, translated by J. Matuszewski, developed by J. Strzelczyk, Warszawa.

Herbord, 1974, *Herbordi dialogus de Vita S. Ottonis Episcopi Babenbergensis*, [in:] *Monumenta Poloniae Historica*, Series Nova, 7/3, eds. K. Liman, J. Wikarjak, Warszawa.

Hilczer-Kurnatowska Z., 1982, *Zakładzina*, [in:] *Słownik starożytności* słowiańskich, vol. 7: *Y–Ź i Suplementy*, eds. G. Labuda, Z. Stieber, Wrocław, pp. 52–54.

Hoggard B., 2004, *The archaeology of counter-witchcraft and popular magic*, [in:] *Beyond the witch trials. Witchcraft and magic in Enlightenment Europe*, eds. O. Davies, W. Blécourt, Manchester–New York, pp. 167–186.

Hukantaival S., 2009, *Horse skulls and "alder-horse" the horse as a depositional sacrifice in buildings*, Archaeologia Baltica, vol. 11, pp. 350–356.

Kajkowski K., 2018, *Symbolika wczesnośredniowiecznych depozytów szkieletów koni z ziem polskich*, [in:] *Hierofanie, wierzenia, obrzędy... Kultura symboliczna w średniowieczu między pogaństwem a chrześcijaństwem*, eds. S. Rosik, S. Jędrzejewska, K. Kollinger, Rzeszów, pp. 121–157.

Kajkowski K., 2022, *Ofiara zakładzinowa w świecie wczesnośredniowiecznych wyobrażeń zachodniosłowiańskich (na przykładzie odkryć z ziem polskich)*, [in:] *W świecie bogów, ludzi i zwierząt. Studia ofiarowane Leszkowi Pawłowi Słupeckiemu*, eds. M. Dzik *et al.*, Rzeszów, pp. 407–433.

Łukaszyk A., 2012, *Wierzchowce Bogów. Motyw konia w wierzeniach Słowian i Skandynawów*, Szczecin.

Makowiecki D., 2019, *Wyniki archaeozoologicznej identyfikacji zwierzęcych szczątków kostnych ze stanowiska 2 w Dąbrówce*, [in:] *Dwa grody nad Wirynką.* Dąbrówka, stanowiska 1 i 2, woj. *wielkopolskie*, eds. M. Szmyt, P. Pawlak, Poznań, pp. 392–441.

Makowiecki D., Chudziak W., Szczepanik P., Janeczek M., Pasicka E., 2022, *Horses in the Early Medieval (10th–13th c.) Religious rituals of Slavs in Polish areas. An archaeozoological, archaeological and historical overview*, Animals, vol. 12, pp. 2282, https://doi.org/10.3390/ani12172282.

Makowiecki D., Wiejacka W., 2023, *Horse (Equus caballus) in Early Medieval Poland (8th–13th/14th century) according to zooarchaeological records*, Toruń.

Matusiak S., 1911, *Wieszczba i* źreb, Lud. Kwartalnik etnograficzny, vol. 17, pp. 193–241.

Merrifield R., 1989, *The Archaeology of Ritual and Magic*, New York.

Morris J., 2012, *Animal "ritual" killing: from remains to meanings*, [in:] *The killing and burial of animals. European perspectives*, ed. A. Pluskowski, Oxford, pp. 8–21.

Moszyński K., 1929, *Kultura ludowa Słowian. Część 1: Kultura materjalna*, Kraków.

Moszyński K., 1929–1930, *Zwyczaje* świętojańskie *na zachodnim Polesiu*, Lud Słowiański. Pismo poświęcone dialektologji i etnografji Słowian, vol. 1, pp. 76–88.

Moszyński K., 1934, *Kultura ludowa Słowian. Część 2. Zeszyt 1: Kultura duchowa*, Kraków.

Pawlak E., Pawlak P., 2019, *Przejawy* życia *duchowego mieszkańców grodu na stanowisku 2 w Dąbrówce*, [in:] *Dwa grody nad Wirynką. Dąbrówka, stanowiska 1 i 2, woj. wielkopolskie*, eds. M. Szmyt, P. Pawlak, Poznań, pp. 163–172.

Płock, 2011, *Płock wczesnośredniowieczny*, [in:] *Origines Polonorum*, vol. 4, ed. A. Gołembnik, Warszawa.

Rajewski Z., 1974, Święta *woda u Słowian – źródła, rzeki, jeziora*, Slavia Antiqua, vol. 21, pp. 111–117.

Rajewski Z., 1975, *Koń w wierzeniach u Słowian wczesnośredniowiecznych*, Wiadomości Archeologiczne, vol. 39, pp. 516–521.

Rajewski Z., Maciejewski F., 1957, *Badania wykopaliskowe* źródeł *krynicznej wody w Biskupinie, pow. Żnin*, Wiadomości Archeologiczne, vol. 24 (3), pp. 232–243.

Saxo Grammaticus, 2015, *Gesta Danorum – the history of the Danes*, ed. K. Friis-Jensen, vols. 1–2, Oxford.

Słupecki L. P., 2003, *Wróżbiarstwo pogańskich Słowian*, [in:] *Słowianie i ich sąsiedzi we wczesnym* średniowieczu, ed. M. Dulinicz, Warszawa–Lublin, pp. 73–80.

Szafrański W., 1983, *Płock we wczesnym średniowieczu*, Wrocław.

Szczepanik P., 2020, *Rzeczywistość mityczna Słowian północno-zachodnich i jej materialne wyobrażenia. Studium z zakresu etnoarcheologii religii*, Toruń.

Thietmar, 2001, *Ottonian Germany. The Chronicon of Thietmar of Merseburg*, ed. D. A. Warner, Manchester–New York.

Trzeciecki M., 2011, *Początki Płocka*, [in:] *Płock wczesnośredniowieczny*, ed. A. Gołembnik, Warszawa, pp. 55–100.

Udziela M., 1905, *Przyczynki do medycyny ludowej*, Lud. Organ Towarzystwa Ludoznawczego we Lwowie, vol. 11 (1), pp. 394–401.

Wawrzeniuk J., 2016, *Magia ochronna Słowian we wczesnym średniowieczu na ziemiach polskich*, Warszawa.