Uniwersytet im. Adama Mickiewicza
w Poznaniu

Slavia Antiqua
LXVI (2025)
DOI: 10.14746/sa.2025.66.1

I. ARTYKUŁY – PAPERS

AMBER IN THE IRON AGE COMMUNITIES OF THE KUYAVIA REGION. A CASE STUDY OF GĄSKI SITE NO. 18

PAULINA SUCHOWSKA-DUCKE
Adam Mickiewicz University in Poznań, Faculty of Archaeology, Uniwersytetu Poznańskiego 7, 61-614 Poznań, Poland,
pausuc@amu.edu.pl
ORCID: 0000-0001-5325-8900

MILENA DANIELEWSKA-TESKA
Adam Mickiewicz University in Poznań, Faculty of Archaeology, Uniwersytetu Poznańskiego 7, 61-614 Poznań, Poland,
m.teska@amu.edu.pl
ORCID: 0000-0002-0685-5750

JÓZEF BEDNARCZYK
Foundation for the Protection of the Cultural Heritage of Kuyavia Society „Cuiavia", Roosevelta 36, 88-100 Inowrocław, Poland,
jotbe@amu.edu.pl
ORCID: 0009-0007-6324-5063

BARBARA STOLPIAK
Foundation for the Protection of the Cultural Heritage of Kuyavia Society „Cuiavia", Roosevelta 36, 88-100 Inowrocław, Poland,
stolbar@amu.edu.pl
ORCID: 0009-0006-6652-9857

MAŁGORZATA TALARCZYK-ANDRAŁOJĆ
Archaeological Services REFUGIUM, Jugosłowiańska 48A/44, 60-149 Poznań, Poland,
mtalandr@gmail.com
ORCID: 0009-0008-7268-5228

Abstract. The historic region of Kuyavia has long represented an important area of cross-cultural communication in the heart of the Polish lands. During the Iron Age, Kuyavia evolved into a transit area for the amber trade between continental Europe and the Mediterranean region. This had transformative effects on the area's inhabitants, known as members of the Przeworsk Culture, for instance in Gąski site no. 18, where the remains of a Pre-Roman Iron Age cemetery and a later settlement have been preserved. The small amounts of amber recovered from the burials suggest an initially marginal importance of amber in the material culture. This stands in stark contrast to the site's later development when its inhabitants realized the commercial significance of amber and the advantages of their location, and were actively involved in the exchange of the fossilized resin. Amber artefacts were produced in specialized workshops where numerous objects have been found among imports, such as glassware, Roman coins, and *terra sigillata*.

Keywords: amber, Kuyavia, Przeworsk Culture, cross-cultural communication, Iron Age.

Fig. 1. Map of Poland with modern Kuyavian-Pomeranian Voivodeship (grey area), historic region of Kuyavia (red outlines) and location of Gąski. Map background (topography and rivers) by Natural Earth (public domain). Figure by B. Ducke

Introduction

Modern-day Gąski is a village that is typical for small agricultural settlements on the Kuyavian Plateau (Fig. 1). It is located in the Kuyavian-Pomeranian Voivodeship (Inowrocław county, Gniewkowo commune), approximately 20 km north-east of the town of Inowrocław. In the surrounding Gąski-Ostrów marshlands, on a slightly elevated area[1], artefacts had been discovered as early as the 19th century, suggesting the existence of an archaeological site (Zielonka 1970, p. 194). The first systematic field surveys were carried out in the region in 1972, resulting in the first proper identification of the site at Gąski. Shortly after, in 1973, this discovery was added to the region's published list of archaeological sites as "Gąski, site no 18" (Cofta-Broniewska 1993, p. 201; Andrałojć and Stolpiak 2004, pp. 217-218). The initial decision for conducting archaeological investigations, including excavations, at Gąski was not motivated by academic interest. Rather, it was driven by news of the villagers unearthing numerous pottery fragments and entire vessels, and of an amateur excavation of a prehistoric feature, carried out by the director of the local primary school. The feature was later identified as a cremation grave (recorded as "grave 1"), and it contained several ceramic vessels, an iron knife and two bracelets.

[1] In the following, this elevated area will be referred to as "the knoll".

Fig. 2. Plan of field work conducted at Gąski site 18 in the years 1984-1991. Map base: http://mapy.geoportal.gov.pl. Figure by J. Bednarczyk

Properly supervised excavations by the Kuyavia Research Team of the Institute of Prehistory of Adam Mickiewicz University (nowadays Faculty of Archaeology of Adam Mickiewicz University)[2], started in 1984 and were continued until 1991. These activities, across a contiguous area of 1,300 m^2 (Fig. 2), were supervised by A. Cofta-Broniewska (1984-1988), B. Stolpiak (1985-1991) and M. Talarczyk-Andrałojć (1985-1990). The uncovered archaeological features appeared to be almost undisturbed, although they were located within an arable field. Excavations eventually unearthed remains from the Neolithic period, the Early Bronze Age (sparse and residual finds only), the Pre-Roman and Roman Iron Age, and the Early Middle Ages. However, the results of subsequent field work, conducted until 2020 (see below), suggest that the total area of the site is larger than originally estimated.

[2] Initially as the "Kuyavian Expedition of the Department of Archaeology of Adam Mickiewicz University". Further systematic field work, undertaken at a similar time, was carried out in the vicinity, at sites Gąski no. 12, 13 and 21, as well as at Parchanie no. 21 and Parchanki no. 25.

In fact, the excavations of the 1980s and early 1990s seem to have covered only a small part of the site, bounded to the south by the bed of a former stream (now sewered). This assumption is supported by the results of field walking surveys, artefact distribution maps and trial trenches, all undertaken in the 1990s by B. Stolpiak, and covering a larger area on both sides of the road leading from Gąski to the neighbouring village of Wierzbiczany (approximately three kilometres to the north).

Further support for much larger extents of the prehistoric site is provided by observations on aerial photographs (albeit pending a systematic review), as well as another surface prospection for the AZP (Polish Archaeological Record), carried out in 2006 by M. Talarczyk-Andrałojć. The latter resulted in the merging of sites Gąski nos 18 and 19 into the single site of Gąski no. 18. Currently, the estimated maximum area of the site stands at approx. 120,000 m^2, based on the spatial distribution of surface finds produced by prospection with a metal detector (conducted in 2008-2020 by J. Bednarczyk, M. Andrałojć and M. Talarczyk-Andrałojć). These finds include over 1,000 items from to the Iron Age, the majority of which can be dated to the younger Pre-Roman Iron Age and to the Roman Iron Age, as well as over 250 Roman coins. Despite these impressive figures, it must be assumed that the finds represent an impoverished sample, because the site is regularly and illegally searched and looted by detectorists.

Between 2009 and 2015, following information from the inhabitants of Gąski, J. Bednarczyk carried out test pits, which resulted in the discovery of an early Medieval deposit of coins and silver ornaments, as well as fragments of amber from layers dating to the Iron Age Przeworsk Culture. In summary, the entirety of the archaeological evidence to date suggests that Gąski site no. 18 saw its densest settlement phase during the time of the Przeworsk Culture. Unfortunately, that settlement phase has never been fully studied and published. Therefore, this article must be viewed as a summary and interpretation of the current state of knowledge. In the future, desk-based research on the excavation archives, as well as renewed excavations of the cemetery area at Gąski will serve to update and possibly revise the conclusions drawn here.

The Przeworsk Culture settlement at Gąski site no. 18

The most comprehensive archaeological remains at Gąski can be attributed to the people of the Przeworsk Culture, who first established a cemetery there, and later also a settlement. The location was likely chosen for its favourable environmental conditions, such as its proximity to the Tążyna and Zielona Struga tributaries of the Vistula River, the presence of fertile black soils (widely occurring in the region around Inowrocław and Gniewkowo) and the availability of raw materials, such as clay deposits and bog ores (Danielewski 2016, p. 91, 97). The latter

are attested in close vicinity of Gąski, in the valley of the Parchański Canal and Tążyna tributary (Guldon 1974, p. 32; Cofta-Broniewska 1979, pp. 19-20; Danielewski 2016, pp. 87-88).

The Przeworsk Culture cemetery at Gąski covers an area of *c.* 800 m^2 (Cofta-Broniewska 1993, p. 201; Andrałojć and Stolpiak 2004, p. 218). Its earliest phase is dated by finds of fibulae of Middle La Tène scheme, which represent transitional forms between J. Kostrzewski's (1919) types B and C, as well as his type C. Most of these fibulae are relatively short (up to 8 cm in length: see Dąbrowska 1988, pp. 16, 20), with only a few longer examples. It can therefore be assumed that the cemetery was perhaps already in use at the end of the A1 phase, and certainly at the A2 phase of the younger Pre-Roman Iron Age, i.e. at the time when the Przeworsk Culture was already fully established in Kuyavia (Grygiel 2004, p. 35). The end phase of the cemetery's use is evidenced by finds of strongly profiled fibulae of O. Almgren's (1923) types 67, 67/68 and 68, as well as three so-called "Prussian" specimen. The occurrences of these types indicate that the cemetery fulfilled its function until the second half of the 1st century AD, i.e. at least until the beginning of phase B2 of the Roman Iron Age.

The cemetery at Gąski provided valuable insights into the ritual customs of the Przeworsk Culture people. Most of the graves were located quite deeply under the modern terrain surface, and the area itself had not been significantly disturbed by recent land use. This meant that both the spatial and stratigraphic layout of the necropolis were well-preserved. As a result, a significant diversity of evidence for funeral practices was observed and recorded by the excavators, including the presence of a presumably religious or ceremonial building, located on the knoll, towards which the spatial arrangement of the cemetery was apparently orientated (cf. Cofta-Broniewska 1993, p. 210). Sepulchral features, and those closely associated with them, were found to densely occupy the entire area of the cemetery. They were present both on top of the knoll and on its slopes, regardless of their differing types: In Gąski the "biritualism" of inhumation and cremation, typical of the Przeworsk Culture in Kuyavia, is particularly well-visible. Indeed, out of all the Przeworsk Culture skeleton graves excavated across the entire region of Kuyavia, most come from this site. The bulk of the excavated evidence consists of as many as 40 skeletons preserved in their graves, dating back to the younger Pre-Roman and Roman Iron Age. Moreover, Gąski site no. 18 has the highest proportion of child burials[3] among all known Przeworsk Culture cemeteries. The children graves constitute nearly 50% of all burials recorded, a proportion that is commonly observed on the cemeteries of other cultures of late prehistory (Henneberg 1977). Classic cremations and skeleton graves, including partial ones, were also accompanied by bone clusters, "symbolic graves" (with the appropriate grave

[3] Anthropological analyses were performed by J. Piontek (A. Cofta-Broniewska Archives/Faculty of Archaeology, Adam Mickiewicz University).

construction, equipment and even animal remains or traces of burning, however, lacking human remains), and shallowly located, single vessels (mostly cups).

It was only in the Late Roman Iron Age (3rd/4th century AD), that the people of the Przeworsk Culture founded their settlement at Gąski, which they probably vacated again at the beginning of the 5th century AD[4]. To investigate the settlement, around 1,300 m^2 metres of surface area were excavated, which probably covers only part of the settlement (Cofta-Broniewska 1993, p. 219). The recorded remains of the settlement's buildings allow to distinguish between residential and commercial areas. The first consisted of several houses, while the second included pits and of post-holes. Objects of material culture discovered in the remains of the residential buildings provided a wealth of information about various aspects of contemporary life. Finds of imported glassware and Roman coins indicate well-developed long-distance contacts of the local Przeworsk population. Of particular interest, however, are the numerous finds of amber, comprising lumps and shavings, semifinished products and beads. Their concentration within the houses suggest that there were amber workshops on the site. Further noteworthy are the large share of grey pottery and remains of imported *terra sigillata*. There was also a pottery workshop located in the settlement, where good-quality ceramic vessels were produced, and a metalsmith's workshop, where bronze and iron were worked, as evidenced by the finds of alloys, semifinished metal products, decorative items, a jewellery hammer, smelting furnaces and numerous remains of slag (Cofta-Broniewska and Kośko 2002, pp. 122, 152). The associated production area, located in the western part of the settlement.

Gąski site no. 18 is part of a larger settlement micro-region, which some authors refer to as the Kruszańska group of the Przeworsk Culture (see e.g. Cofta-Broniewska 1979, pp. 232-235; Kokowski 1989, p. 120; Cofta-Broniewska 1993, pp. 201-202; Cofta-Broniewska and Kośko 2002, pp. 114-118; Andrałojć and Stolpiak 2004, p. 217). The distinction of this local cultural group was made to reflect Celtic style aspects of material culture that occur in Kuyavia from the Pre-Roman Iron Age to the end of Antiquity. These aspects deviate from the "classical material features" of the Przeworsk Culture, and they have led some scholars to not only point out the significant cultural influence of the Celtic centres located to the south, but to also consider an actual presence of limited populations of Celts in Kuyavia (Cofta-Broniewska 1976, p. 117). The uniqueness of the Przeworsk Culture sites in Kuyavia manifests itself both on the cemeteries (which are for this reason also called "Kruszańskie": see Cofta-Broniewska 1979, pp. 48, 222; Cofta-Broniewska and Bednarczyk 1998, p. 7) and in the settlements. On the cemeteries, it manifests

[4] Establishing a more precise chronology is not possible at the current stage of post-excavation studies. The excavation records of the settlement are still being prepared for detailed analysis. This applies to the classification of artefacts found within the settlement, as well as the identification of archaeological features.

itself in the co-existence of cremation and inhumation burials (with the latter attributed to Celtic influence: Cofta-Broniewska 1979, p. 222), the occurrence of animal bones in burials, the presence of certain grave goods (e.g. individual vessels), and the so-called "sacred structure" (Cofta-Broniewska 1979, pp. 173-179). At the same time, the characteristic, shared features of the Kuyavian ecumene, its well-developed commercial aspects, is evidenced by the large share of wheel-made pottery, glass and amber products, found primarily on settlement sites (see e.g. Cofta-Broniewska 1990, p. 75).

Thus, the regionalism of Kuyavia seems clearly visible in the archaeological record, although the concept of the "Kruszańska group", understood as "a complex of local cultural rules differing in their genetic and functional structure from broader lowland patterns" (Cofta-Broniewska 1979, p. 5), is also treated with scepticism by some authors (Woźniak 1981, pp. 272-278; Tempelmann-Mączyńska 1983, pp. 269-276; c.f. Kokowski 1991, pp. 143-145). After all, the object of interest is a local cultural group, not an autonomous archaeological culture. Therefore, the term "Kuyavian group of the Przeworsk Culture" was proposed in the academic discourse, which includes the regional cultural uniqueness of Kuyavia in the younger Pre-Roman and Roman Iron Age, while keeping the standard features of the Przeworsk Culture (Olędzki, Zawilski and Borowska-Strugińska 2018, pp. 14-18). Regardless of nomenclature, it should be stated that Gąski site no. 18, on the one hand, stands out from many others sites of the Przeworsk Culture, and on the other hand, corresponds to those known from the Kuyavian uplands (e.g. Krusza Zamkowa site 13, Inowrocław site 58). This relates mainly to the characteristic funeral traditions mentioned above, but it also comprises other aspects. Undoubtedly, the long-distance contacts maintained by the inhabitants of Gąski led to the establishing of the settlement as a cultural centre within its micro-region. This is confirmed, for instance, by amber finds, recorded from excavations at the cemetery and in the settlement, as well as from surface prospection. However, significant differences in the number of amber artefacts, obtained from different phases of the site's inhabitation by the people of the Przeworsk Culture, suggest significant antinomies in the role of amber and its significance within the material culture of the local communities.

Amber at the cemetery

The amber finds from the Przeworsk Culture cemetery at Gąski consist of only three beads and possibly one semifinished product. Amber objects were found in four burials; two came from skeleton graves, the other two from cremation graves.

In grave 52 (Fig. 3), a woman aged 60-70 was buried. Her skeleton, in anatomical arrangement but without the skull, showed clear marks of childbirth. The deceased was lying in a strongly contracted position on her right side; the shin-

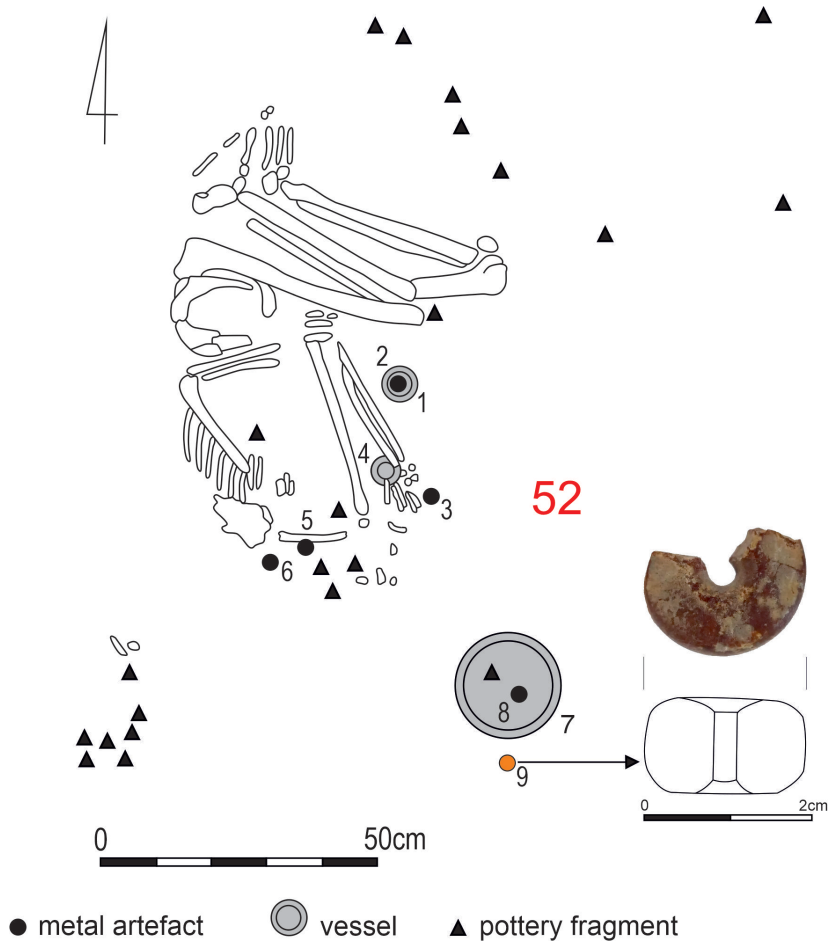

Fig. 3. Przeworsk Culture cemetery at Gąski site 18. Sketch of grave no. 52 with amber bead. Sketch by M. Gorączniak; graphic design by J. Kędelska; image by M. Danielewski (amber bead in the collections of the Kujawy Cultural Center in Inowrocław)

bones were particularly severely contracted. There was a green coating on the phalanges of her left hand which was the result of corrosion of a bronze artefact. The skeleton was oriented on the north-south axis, with the head facing south. The woman's grave inventory included: ceramic vessels, a bronze fibula, a bronze needle, an iron knife and fragments of two more, and a damaged disc-shaped amber bead with a diameter of approx. 2 cm (inventory 3670). The amber bead can be assigned to type 389 of M. Tempelmann-Mączyńska's (1985) typology. Additionally, animal bones were recorded in the grave pit, such as cattle (with cutting marks), sheep, pig, and fish. This burial can be dated based on the bronze fibula of 7.2 cm length, which represents group III, variant Almgren 60 and is associated

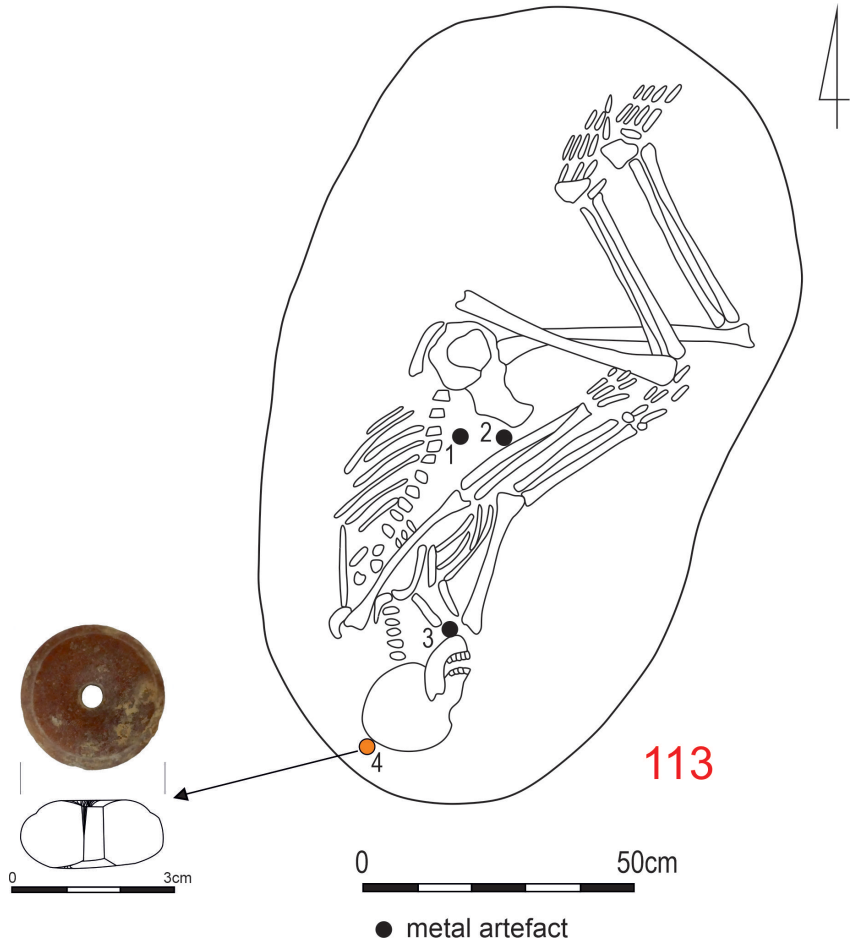

Fig. 4. Przeworsk Culture cemetery at Gąski site 18. Sketch of grave no. 113 with amber bead. Sketch by M. Gorączniak; graphic design by J. Kędelska; image by M. Danielewski (amber bead in the collections of the Kujawy Cultural Center in Inowrocław)

with phase B2a of the Roman Iron Age (see Twardo 2003, p. 179); most probably with the beginning of that phase[5].

Another woman, around 30 to 40 years of age, was buried in grave 113 (Fig. 4). Her skeleton was in an anatomical arrangement, lying on its right side in a contracted position, and it was also oriented on the north-south axis, with the head facing south. The pelvic bones were placed in a supine position, with the legs

[5] Only three fibulae of the "Prussian" type series were recovered from the cemetery, and they are the latest dating examples of such jewellery coming from the site. Therefore, it seems that the end of the usage of the Gąski cemetery dates to the 1st century AD.

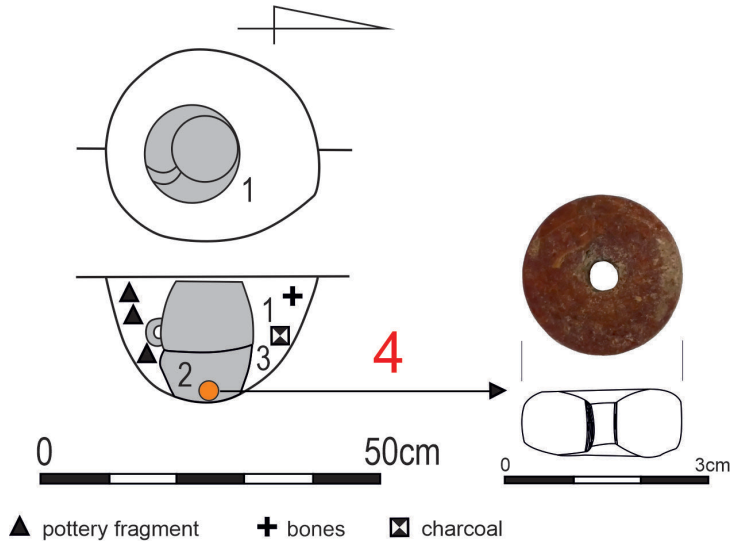

Fig. 5. Przeworsk Culture cemetery at Gąski site 18. Sketch of grave no. 4 with amber bead. Sketch by J. Kędelska; image by M. Danielewski (amber bead in the collections of the Kujawy Cultural Center in Inowrocław)

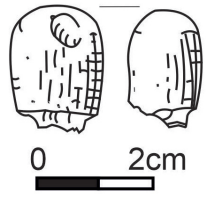

Fig. 6. Drawing of the semi-finished amber product found in grave no. 213 at the cementary in Gąski site 18. Drawing by L. Fijał

turned to the right at the hip joint. On the back of the woman's skull, there was a disc-shaped, well-preserved amber bead, 2.7 cm in diameter (inventory no. 3658), which also represents Tempelmann-Mączyńska's type 389. On the woman's left arm, a bronze fibula was found, and two iron rings were located near her pelvis. The fibula represents the Danubian type Almgren 67, which allows the burial to be placed within phase B1a of the Roman Iron Age (see Demetz 1999, pp. 133-135; cf. Wnuczek 2012, p. 195).

By contrast, graves 4 (Fig. 5) and 213 were cremation burials of children, both identified as *infans I*. In both graves, ceramic vessels and amber were found. In addition, grave 4 contained a disc-shaped amber bead with a diameter of 2.3 cm

(inventory no. 3063), and grave 213 contained an intentionally reworked fragment of amber (inventory no. 3960) (Fig. 6). A typological dating of both burials is possible, based on the pottery found in the graves. However, this is fraught with considerable uncertainty, since ceramic types of the younger Pre-Roman Iron Age were still in use during the early stages of the Roman Iron Age (Liana 1970, p. 430). In this respect, it is noteworthy that grave 213 contained vessels with strongly faceted rims, which supports the notion that this burial dates to the Pre-Roman Iron Age. The corresponding ceramic bowl represents type II.3 of T. Dąbrowska's (1997, p. 102) typology, and dates mainly to phase A3 of the Pre-Roman Iron Age. Another vessel from grave 213 features a distinct neck and a tripartite profile that corresponds well to type "A.1" in T. Dąbrowska's (1997, p. 104) classification, a type which appears (at the earliest) in the final phase of the younger Pre-Roman Iron Age. The barrel-shaped cup found in grave 4, on the other hand, is a long-lasting form. However, fragments found together with the barrel-shaped cup belong to another vessel with a rounded profile and the largest bulge of its belly approximately halfway up its height. This shape corresponds with type "I/2" of T. Liana's (1970, p. 439) typology, where it dates to phase B1 of the Roman Iron Age.

Amber in the settlement

In addition to pits of various sizes and functions, the excavations of the prehistoric settlement at Gąski revealed the remains of residential and utility buildings. Intriguingly, all of them contained amber finds (Fig. 7). In three of them (objects no. 366, 458 and 528 in the excavation records), several hundred lumps and amber artefacts were discovered (Fig. 8). The fourth house (object 104), although it contained only a few items made of amber resin (Fig. 9), was identified as the house of a wealthy merchant (see below). This was based on the observation that it also contained fragments of imported glass vessels and luxurious Roman pottery, as well as a deposit of Roman coins hidden right next to it.

The largest number of amber objects was discovered in the remains of house 366. Out of the 370 amber pieces unearthed there, 355 were lumps of raw material and shavings, seven fragments showed traces of processing and five were broken beads (which were probably damaged while attempting to drill holes through them). This concentration of amber artefacts was located in the southern and western parts of one room. The same room also contained everyday household items typical, as well as four fragments of imported glassware and a fragment of *terra sigillata* (Fig. 9) (Cofta-Broniewska 1999, p. 164). From the same house also came a 5.8 cm long, Late Roman Iron Age cross-bow fibula made of bronze, with a curled foot, identified as type Almgren 162. This fibula type is relatively long-lived, dating from phase C1a of the Roman Iron Age well into the Migration Period (phases D1 to D3), although their presence in the inventories of the Prze-

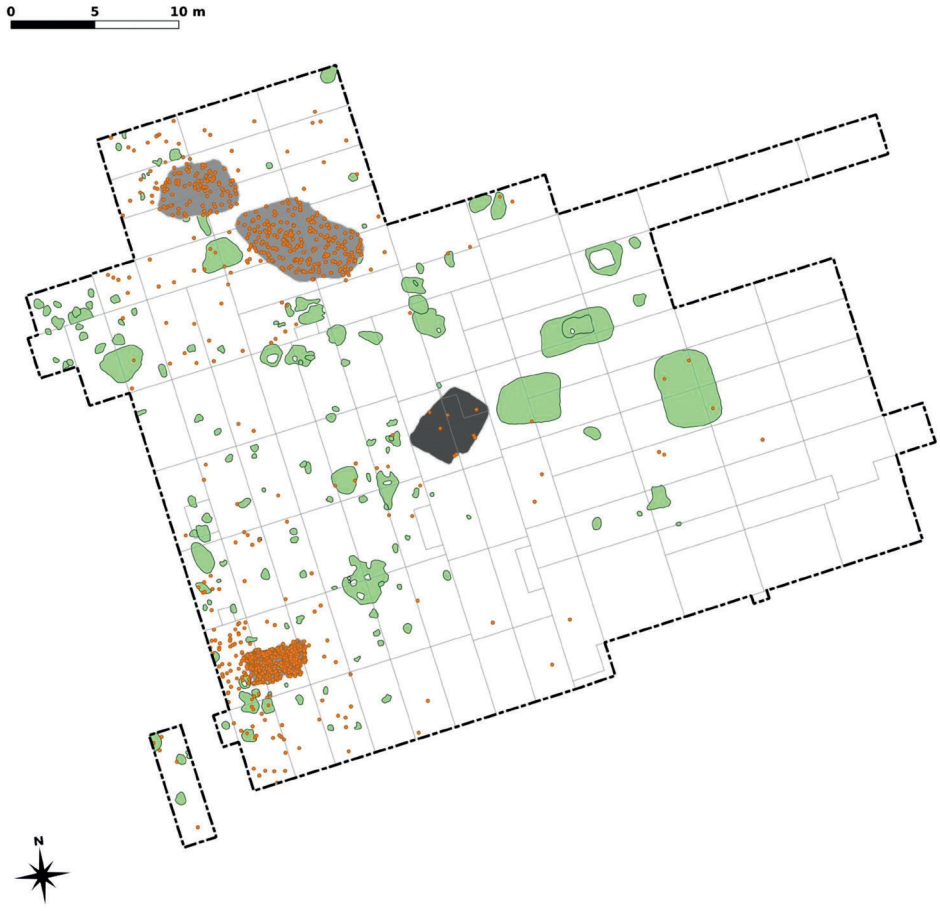

Fig. 7. Spatial dispersion of amber artefacts at the settlement of the Przeworsk Culture in Gąski site 18. Figure by B. Ducke

worsk Culture decreases in frequency over time (see Olędzki and Ziętek 2017, pp. 368-369).

The second-largest amber cache, comprising over 200 fragments, came from building 458. This included 150 lumps and shavings, three semifinished products and two damaged beads. Similar to house 366, this house also contained a room with everyday objects and six fragments of imported glassware, a glass bead and a fragment of *terra sigillata* (Fig. 9). The amber artefacts were concentrated in the south-eastern part of the room (Cofta-Broniewska 1999, p. 165). Among the house's inventory there was a 5.9 cm long Late Roman Iron Age fibula from "group VI",

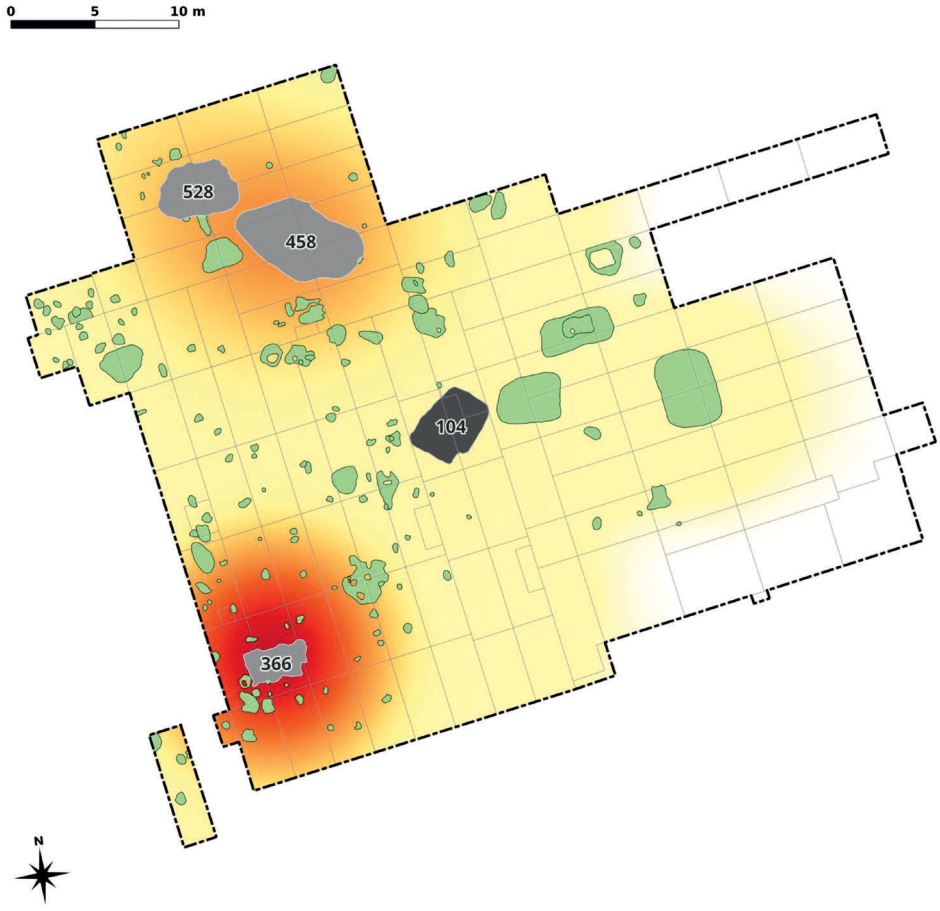

Fig. 8. Przeworsk Culture settlement at Gąski site 18. Kernel Density Estimation (KDE/radius=10m) of amber artefacts. Figure by B. Ducke

i.e. type Almgren 158, made of iron. This type is also a long-lasting form that might have been in use as late as the 5th century AD (see Godłowski 1974, pp. 25-27; Kaczanowski 1987, pp. 60-62; Olędzki and Ziętek 2017, p. 368).

Finally, in house 528, another cluster of 90 amber objects was unearthed, including 87 lumps and shavings, one semifinished product and two damaged beads (Cofta-Broniewska 1999, pp. 164-165). The amber objects were mostly located in the north-western part of one of the rooms, but some were found outside the former walls of the house. In a pattern similar to the two previously discussed cases, typical household items were found inside the house, as well as two fragments

Fig. 9. Przeworsk Culture settlement at Gąski site 18. Fragments of *terra sigillata* from features no. 458 (a) and 366 (b). Image by M. Danielewska-Teska; drawing by L. Fijał

of imported glass vessels, two fragments of glass beads, a fragment of terra sigillata and a Roman denarius of Antoninus Pius (145-161 AD)[6].

Of particular interest is the aforementioned house 104, located in the central part of the settlement, which has been interpreted to be the house of a merchant involved in amber exchange (Cofta-Broniewska 1993, pp. 220, 222; 1999, pp. 165-166). And indeed, the finds unearthed during the excavations provide strong evidence that the inhabitants of the house enjoyed high socio-economic status. At least eight amber artefacts were recorded, including four whole beads (which were shaped differently from other such items found in the settlement), fragments of damaged beads, amber with traces of processing and three lumps of raw material (Fig. 10). In addition to typical household items, the finds also included metal artefacts and import items (fragments of eight glass vessels, five glass beads, fragments of decorated pottery), as well as two Roman coins. Moreover, a hoard of Roman denarii consisting of 140 coins was deposited right next to the corner of this object, with one additional denarius found lying loose beside. The treasure had been deposited in an unpreserved textile bag (traces of the fabric's residue are still visible on several coins), fastened with a silver pin. Among the coins are silver denarii minted during the reigns of emperors Antoninus Pius (the earliest coin is dated to 138 AD), Marcus Aurelius, Commodus and Septimius Severus (the latest coin dates around 196-197 AD). The condition of the coins, showing traces of significant use-wear, suggests that they were in circulation for a very long

[6] The numismatic analysis was carried out by A. Krzyżanowska (A. Cofta-Broniewska Archives/ Faculty of Archaeology, Adam Mickiewicz University).

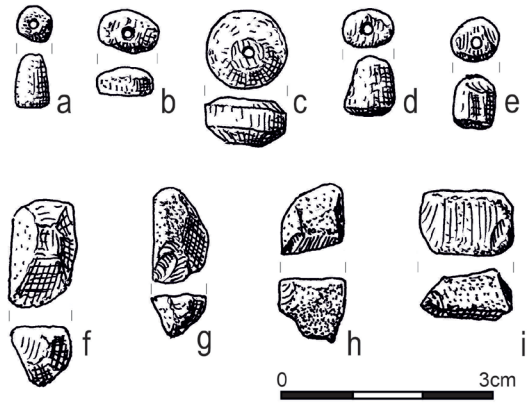

Fig. 10. Przeworsk Culture settlement at Gąski site 18. Selection of amber beads (a–e) and lumps (f–i) from feature no. 104. Drawing by L. Fijał

time, exceeding the reigns of emperors during which they were issued. They were probably deposited at the end of the 4th or even the beginning of the 5th century AD[7].

The remains of the houses described above are not the only ones that contained amber. During the residential phase of the Przeworsk people at the Gąski, this raw material was also deposited in two other houses. In house 6, for instance, a whole bead, a fragment of a bead and lumps of amber were found, as well as bone and metal objects and a spindle whorl. In house 35, a fragments of a beads and a piece of amber, bone artefacts, fragments of glass vessels, a fibula, two iron knives and a fragment that probably represents part of a Roman coin. Lumps of and shavings of amber were also found during the excavation of two hearths, three postholes and six pits, which were all associated with the residential buildings of the Gąski settlement. There are also numerous amber artefacts among the so-called "loose finds" recovered from across the investigated area of the settlement. Amber lumps are predominant among these, although two bead fragments were also found.

As a result of systematic surface prospection and trial trenches carried out from 1990 to 1991, the number of amber items recovered from Gąski increased even further, and the likely location of yet another amber processing workshop was identified (Cofta-Broniewska 1993, p. 166). The potential workshop lies approximately 250 metres north-east of the part of the excavated area, in a spot where 170 amber objects, including two beads with drilling damage, lumps with traces

[7] More information see Balbuza, Danielewska-Teska, Suchowska-Ducke, Stolpiak and Talarczyk-Andrałojć 2025.

of processing and a significant amount of raw amber were found. Additionally, fragments of pottery and metal objects, a glass bead, two silver Roman denarii (of Trajan and Faustina the Younger) and a bronze sestertium of Antoninus Pius were found there. Finally, further finds of amber were made to the north of the extents of the designated area of Gąski site no. 18.

Amber use and processing by Kuyavian societies

Studies on the importance of amber among prehistoric Kuyavian communities would not be possible if it were not for the long-term research programme carried out at the Faculty of Archaeology (then the Institute of Prehistory) of Adam Mickiewicz University. The aim of this programme, implemented by the Kuyavia Research Team (founded by A. Cofta-Broniewska), was to study the phases of cultural development in the region (see Cofta-Broniewska 1984; 1999). The published results indicate that amber was present at every known Przeworsk Culture site investigated in Kuyavia, both in settlements and cemeteries, dating back to the younger Pre-Roman and Roman Iron Age. However, there is a fundamental difference between the two principal find contexts, because settlements are the predominant source of amber finds, while there are only a few finds known from burials.

Amber finds from Kuyavian cemeteries dated to the younger Pre-Roman and Roman Iron Age are rare. At site no. 13 in Krusza Zamkowa, only one fragment of an amber bead was discovered. It came from skeleton grave no. XXVII, and was dated to phase A2 of the Pre-Roman Iron Age (Kokowski 1989, p. 111; 1991, Fig. 15), based on discoveries of fibulae of types G and K of Kostrzewski's (1919) typology. Another skeleton grave (no. 54) from the cemetery at Inowrocław 58, contained four amber beads (Cofta-Broniewska and Bednarczyk 1998, pp. 43-46, Figs. 23: 4, 6, 10, 12). This burial can also be dated to phase A2, based on the find of a fibula of Kostrzewski's type K. On the other hand, the amber beads coming from the princely skeleton grave discovered in Karczyn/Witowy, site 21/22, can be dated tentatively to the transition between phases B1b and B2a of the Roman Iron Age, as suggested by the find of a fibula of type Almgren 75 (see Bednarczyk and Romańska 2015, pp. 19-20). A perhaps slightly earlier dating is appropriate for archaeological feature (object) 600, excavated at the same cemetery, which contained an amorphous lump of amber. And finally, the amber beads from skeleton grave no. 264 at Karczyn/Witowy can be dated to phase B2b (Bednarczyk and Romańska 2015, p. 24). Several amber beads from the cemetery at Pruchnowo site 23 are also dated to the Early Roman period (see Andrałojć 1992, p. 169, Figs. 6, 7a-d).

The amber finds discovered so far at Kuyavian cemeteries come mainly from skeleton graves. This can be explained by the fact that the cremation process had a detrimental influence on the state of preservation of items made from this resin (Kokowski 1989, p. 111; 1991, p. 127). Therefore, it is worth pointing out,

Fig. 11. Semi-finished amber beads from workshop in Jacewo site 4b. Image by M. Danielewski (the collection of the Kujawy Cultural Center in Inowrocław)

once more, the two amber finds that were made in the infant cremation burials at Gąski.

Regarding the amber coming from settlements and residential areas, it seems that the earliest such items were found in the settlement at Dobieszewice 2, where two amber lumps appeared in a clay pit of the Przeworsk Culture (Bednarczyk and Kośko 1975, p. 224). Based on the pottery, the settlement can be dated to the end of the Pre-Roman Iron Age and the beginning of the Roman Iron Age (i.e. phases A3 to B1).

All known amber workshops, however, date to later times[8]. The best-studied example is the one at Jacewo, site no. 4b, discovered in 1968. It is the first such workshop to have been identified in Kuyavia (Cofta-Broniewska 1970; 1972; 1975, p. 414; 1978; 1984; 1990, pp. 71-72; 1999, pp. 159-161), and it is still a model example of a workshop manufacturing jewellery from this raw material in the

[8] In this context, archaeological field work that is currently being conducted ahead of the construction of a new power line between Marulewska and Gniewkowo is of particular relevance. At the site of Ostrowo 2, further amber workshops have been discovered that seem to date much earlier, to the end of the Pre-Roman Iron Age (personal communication by M. Talarczyk-Andrałojć and M. Andrałojć).

Fig. 12. Amber crumbs – waste from workshop in Jacewo site 4b. Image by M. Danielewski (the collection of the Kujawy Cultural Center in Inowrocław)

region. The material obtained at the time of discovery was not fully subjected to specialist analyses[9], but three samples that were tested showed that the amber was of Baltic origin (Bernat 1971). At Jacewo, 5020 pieces of amber (Fig. 11 and 12) were found in two clusters, covering a total area of 500 m^2. The first cluster of amber objects was located in a room measuring four by five metres, where as many as 4940 artefacts made of this raw material were discovered, including 238 beads damaged during hole-drilling, six whole beads and 13 fragments with traces of processing, as well as numerous lumps and shavings of amber (Cofta-Broniewska 1978, pp. 45-47; 1999, p. 160). These finds indicate the operation of a thriving amber workshop (Wielowiejski 1991, p. 365). Moreover, fragments of pottery and other household items, as well as animal bones, were discovered in the remains of the building that housed the workshop, which indicates that it served not only an economic but also a residential function. Furthermore, the discovery of imported items in the same room (fragments of four glass vessels, three glass beads, a fragment of terra sigillata and shells from the Cypraeidae family inhabiting the warm seas of the world) confirms that amber processing was a profitable activity. The second cluster was located approximately ten meters from the first one,

[9] The author of the report on the research conducted in Jacewo, A. Cofta-Broniewska (1999, p. 159), reports the lack of a laboratory willing to analyse all the amber material obtained from the excavations.

and only 80 amber artefacts were recorded there, including 15 damaged beads and lumps of raw material. It should be emphasized, however, that the corresponding room has not been fully explored (Cofta-Broniewska 1999, p. 159).

Amber workshops were also identified at Łojewo, site no. 4, (Cofta-Broniewska and Kośko 1976a, pp. 138-139; Cofta-Broniewska 1999, pp. 161-163), Konary, site no. 28 (Cofta-Broniewska and Kośko 1976b, pp. 126-127), Gąski site nos 18 and 24 (Cofta-Broniewska 1999, p. 166), Inowrocław (at several sites designated within this location; see e.g. Bednarczyk and Cofta-Broniewska 1980, pp. 125-126; Cofta-Broniewska 1999, p. 168), Kuczkowo site no. 1 (Cofta-Broniewska 1999, pp. 166-168), Krusza Zamkowa site no. 3 (Kośko, Łaszkiewicz, Szułdrzyński and Cofta-Broniewska 1974, p. 146; Cofta-Broniewska 1999, pp. 168-169), and Janowice[10]; there are more of them than originally assumed (cf. Makiewicz and Michałowski 1997, p. 149, Fig. 6). All of them are laid out in the same spatial arrangement as the aforementioned Jacewo; Cofta-Broniewska presented a detailed description of these workshops in two articles from 1984 and 1999. According to her, the Kuyavian communities were involved in amber working on a large and professional scale, which is confirmed by the finds from Jacewo, Łojewo, Konary, Kuczkowo, Janowice and Gąski. By contrast, the inhabitants of the settlements at Krusza Zamkowa and Inowrocław probably processed amber only occasionally for domestic use. Chronological analysis of the settlement phases of the aforementioned sites indicates that they existed at different times, for a total period of several hundred years. The workshops in Jacewo, Łojewo, Inowrocław and Krusza Zamkowa date to the early Roman Iron Age, while the ones from Konary, Kuczkowo and Gąski date to the late Roman Iron Age. The older workshops are located in the western part of Kuyavia, the younger ones in the eastern part. The spatio-temporal pattern behind these observations reflects the dynamics of the development of the Kuyavian section of a supra-regional communication and exchange route (see next section).

The methods of manufacturing fully worked amber items by the Kruszańska group of the Przeworsk Culture can be reconstructed, based on the analysis of jewellery and semifinished products acquired from excavations and by ethnographical comparison (see Cofta-Broniewska 1984). Depending on whether the items manufactured were intended for trade and exchange or for domestic use by the inhabitants of the settlement, some differences are visible, although most of the amber production stages are analogous. For example, the workshop at Jacewo produced medium-sized beads with a diameter of approximately 1-2 cm and small beads of up to 2-3 mm in diameter, in very diverse shapes (Cofta-Broniewska 1978, p. 145; 1984, p. 155). Its manufacturing process was as follows: After initially cleaning the lump of raw material and, if necessary, cutting it into smaller pieces, it was given a shape similar to the one to be achieved in the final product.

[10] The results of the archaeological research at the Janowice site have not yet been published.

Fig. 13. Raw amber nuggets from Kuyavia. Image by M. Danielewski (the collection of the Kujawy Cultural Center in Inowrocław)

Then, a hole was drilled using a sequence of drills with various thicknesses (Chętnik 1952). Analysis of damaged beads from Kuyavian sites indicate that this activity was the most risky and often ended with the breakage of the prepared piece. However, when the perforation was successful, the bead was given its final shape, in some cases (such as in Jacewo: Cofta-Broniewska 1984, p. 155) using a lathe, and then polished to bring out its natural colour and shine. In the case of smaller beads, instead of using a drill, the hole was made with a heated needle or iron awl. This was done at the very end of the production process, when the bead had already been given its desired shape and polish. This thermal method, although safer, was time-consuming and thus rarely employed by the workshop at Jacewo (Cofta-Broniewska 1984, p. 158). By contrast, it was often used by the workshop at Konary, probably because the latter produced mainly small and flat beads (Cofta-Broniewska 1984, p. 159). The amber raw material itself, as found at Konary, was also of much lower quality than that from Jacewo or Łojewo. Small pieces of amber also predominated in Konary, which suggests that craftsmen tried to make the most of the raw material (which was probably expensive), and even the smallest fragments were used. It is also worth noting that the amber found in Kuyavia was quite homogeneous (Fig. 13). Orange-hued finds predominate the find spectrum, there are fewer honey-coloured and dark orange or reddish pieces, and only a few bi-coloured specimens (with milky-white cores) were discovered (Cofta-Broniewska 1999, p. 170).

On the other hand, and perhaps surprisingly, finds of clearly identifiable tools from amber workshops are extremely rare in Kuyavia. This can be explained in

several ways: Tools that were still useful were probably taken when the inhabitants left the settlement; tools that were worn down by use might have been repurposed or discarded, and yet others removed from the archaeological record as a result of post-depositional processes, including the destruction of sites during ploughing. Nevertheless, the remains of workshops revealed numerous fragments of iron objects, with shapes unknown from those found in houses serving only residential functions (Cofta-Broniewska 1984, p. 160). These finds might well represent the missing tools used for amber working. The basic set of such tools would have included knives, small saws, drills and whetstones, as well as simple lathes (Wielowiejski 1981, p. 374). Similar tools were used in working bone and antler, so it is possible that both crafts were performed by the same, qualified specialists (Skowron 2016, p. 63). This hypothesis is supported by the fact that bone and antler workshops were also discovered in Jacewo and Łojewo.

Kuyavia on the amber (?) route…

Kuyavia, located between the important rivers Oder and Vistula, has always been an area where communication and exchange routes criss-crossed. In the academic literature, evidence of long-distance exchange of a diverse nature is usually conflated into the concept of the so-called "Amber Road", originating from the northern Adriatic coast and leading north (e.g. Wielowiejski 1980; 1984, pp. 175-176; 1996, p. 57; Błażejewski 2012; Bochnak 2014, pp. 191-193). In the younger Pre-Roman Iron Age, corresponding with the dominance of the La Tène Culture over the interior of the European continent, this route, along its section through the Polish lands, included Silesia and Lesser Poland in the south, the Prosna River region in Central Poland and parts of western Kuyavia. During the final stages of this epoch, the route shifted eastward and then ran through Lesser Poland, Mazovia, and Kuyavia to Pomerania; although its western branch was still maintained along the Prosna river (Bochnak 2014, p. 192; Dulęba and Markiewicz 2023, p. 326; see also Olędzki, Podolska-Rutkowska and Rutkowski 2024). The key element in the latter was the proximity to the Moravian Gate (Olędzki, Ziąbka and Kędzierski 2014, p. 244), which was a transit area for not only the attributes of the La Tène Culture and its goods but also for the Celts themselves. Along this artery of communication, Kuyavia remained an important region after the decline of the La Tène Culture, i.e. during the Roman Iron Age. At that time, the route of amber trade led from the Baltic Sea towards Otłoczyn, Krusza Zamkowa and Inowrocław (until the 3rd century AD only via the western part of Kuyavia along the western shores of Lake Gopło), on to Konin, and then to Kalisz, where it most likely split into two branches, running through the Carpathian Basin and further south, eventually reaching the Roman limes (Cofta-Broniewska 1979, pp. 123-156; Wielowiejski 1980, pp. 11-114). It should, however, be noted that not all categories

of foreign objects that occurred in the Polish lands during the Iron Age, can be explained by the presence of such a well-defined and permanent trade artery (sometimes even viewed as a designated, physically existing road, rather than the concept of one (see Teska 2013, p. 171). There is no certainty about the exact route of the Amber Road in the areas north of the Danube (see Błażejewski 2012, p. 57). Rather, this "road" should be understood as a "general direction of contacts", the "course of which could change" (...) and "which involved transportation of various types of goods and ideas" (Domański 1999, p. 179). Likewise, the Kuyavian "branch of the Amber Road" is best described as a channel for the distribution (and redistribution) of goods, although not necessarily exclusively via down-the-line trade (cf. Stawicki 2015, pp. 117-118). Southern European communities certainly maintained contacts with northern ones. At the current state of knowledge, however, it cannot be assumed that these contacts were of more than an indirect nature.

Summary and conclusion

The Przeworsk Culture site at Gąski no. 18 is an outstanding example of prehistoric Kuyavia's Iron Age settlement pattern and burial rites. It is at the same time characteristic and exceptional in the density and clarity of its archaeological features and artefacts. The finds from its cemetery include the earliest examples of amber known from the site. These amber finds come from burial 213, which is also the oldest feature of the site dated to the Pre-Roman Iron Age. The remaining three finds of amber come from a later phase of the cemetery's usage. The small number of discovered amber artefacts from the early phases of Gąski suggests that amber initially did not play an important role in the material culture of the Przeworsk population. Rather, Kuyavia was, at that time, probably only a transit area through which amber was transported from north to south. The appearance of amber-made items at Gąski, along with the good quality craftsmanship of these types of artefacts, does suggest a dawning change in the perception of amber, not only by the inhabitants of Gąski site no. 18, but also in the wider Kuyavian region. However, it remains unclear whether the origin of these early artefacts hints at an already established local production of amber jewellery, or whether they should be considered imports and evidence of contacts with people of the La Tène Culture to the south and west. The beginnings of local amber working may be seen in a semi-product from discovered in burial 213. It shows obvious traces of processing, as it is of regular shape, and it cannot be ruled out that it is in fact a damaged (there is visible breakage) but originally finished product.

The amber find from grave 213 has no analogy in the Celtic world[11], but some authors argue that amber artefacts at that time were present only among those Kuyavian communities with strong connections to the La Tène Culture, and thus

[11] We would like to thank M. Karwowski and H. Čižmářová for their consultations on this find.

indirectly also with the Mediterranean Basin (Dulęba and Markiewicz 2023, p. 320). This perception of Iron Age Kuyavia as a well-connect region is strengthened by the finds of glass objects. Local glass production in Kuyavia at that time is rather unlikely, although it cannot be entirely ruled out (see Kokowski 1991, p. 127; Cofta-Broniewska 1979, pp. 121-122; Stolpiak 1980). Glass beads were found at Gąski within features associated with the Pre-Roman Iron Age, albeit never together with amber finds. A similar case has been observed in the cemetery at Krusza Zamkowa site no. 13. On the other hand, at Inowrocław 58, glass and amber beads were found together in one grave.

Therefore, Iron Age Kuyavia appears as an important contact zone, with finds, such as the ones at Gąski, that supply evidence of interactions between Celtic and local populations. Such finds include a lion-shaped fibula, originating from historic Gaul, which may be viewed as evidence for the presence of Celtic merchants or craftsmen or, based on the fibula's chronological placement[12] craftsmen of Gallo-Roman origin. Further evidence includes the discovery of a Celtic stater, found 60 m north-west of the excavated area at Gąski site no. 18 (Andrałojć and Andrałojć 2012, p. 10). Indeed, the adaptation of certain traits of the La Tène Culture and even Post-La Tène might explain why amber artefacts still occurred in Kuyavia in the early phase of the Roman Iron Age (Dulęba and Markiewicz 2023, p. 323). This is documented by three graves from Gąski, dated to the end of the 1st century AD.

Quantitative and qualitative changes in the production and exchange of amber-made items become visible at Gąski only once the Przeworsk people settled the area. In time, they established amber workshops full of preserved semi-products and raw material. The perception and appreciation of amber among the Przeworsk people had obviously changed significantly. The rising demand for amber-made items, especially in the southern parts of Europe, taught them to value amber and find ways to not only participate in its exchange, but to also benefit from its local processing. The lucrativeness of these activities is indicated by numerous finds of imported vessels and beads made of glass, terra sigillata and Roman coins. What deserves particular attention in this context, are the remains of a building interpreted as a merchant's house. In addition to luxury items and amber found inside the house, a treasure of Roman denarii was discovered 0.5 meters outside of it. All of this lends strong credibility to the assumption that the inhabitants of the settlement at Gąski participated in long-distanced exchange, the main driver of which was Baltic amber.

These processes of change in the socio-economic sphere, as visible in the archaeological record of Gąski site no. 18, can be seen as proxies for manifold cultural interactions that contributed to the steady intensification of not only regional, but also inter-regional contacts, and in which amber seems to have played

[12] The appearance of lion-shaped (leontomorphic) fibulae coincides roughly with the period of the rule of Octavian (63 BC to AD 14).

a significant role. It also confirm the role of Kuyavia as an Iron Age centre of cultural exchange and commerce.

Conflict of Interest: The authors declares no conflict of interest.
Authors' Contributions: The authors confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.
Financial statement: This research was funded by the Faculty of Archaeology of the Adam Mickiewicz University in Poznań (Decision no. DEC-14/WArch/2022).

Bibliography

Almgren O. 1923, *Studien über nordeuropäische Fibelformen der ersten nachchristlichen Jahrhunderte mit Berücksichtigung der provinzialrömischen und südrussischen Formen*, Mannus-Bibliothek 32, Leipzig, Curt Kabitzsch.

Andrałojć M. 1992, *Cmentarzysko ludności kultury przeworskiej w Pruchnowie stan. 23, gm. Radziejów Kujawski, woj. Włocławek*, „Sprawozdania Archeologiczne" 44, pp. 167-180.

Andrałojć M., Andrałojć M. 2012, *Mennictwo celtyckie na Kujawach*, Poznań, Refugium.

Andrałojć M., Stolpiak B. 2004, *Pochówki dzieci z cmentarzyska kultury przeworskiej w Gąskach, stan. 18*, in: W. Dzieduszycki, J. Wrzesiński (eds.), *Funeralia Lednickie. Spotkanie 6*, Poznań, SNAP, pp. 217-221.

Balbuza K., Danielewska-Teska M., Suchowska-Ducke P., Stolpiak B., Talarczyk-Andrałojć M. 2025, *The Treasure of Roman denarii from Gąski site no. 18 (Kuyavia). Preliminary remarks*, „Historia Slavorum Occidentis" 15/3(46), pp. 15-36.

Bednarczyk J., Cofta-Broniewska A. 1980, *Inowrocław, woj. bydgoskie. Stanowisko 95*, „Informator Archeologiczny. Badania 1979", pp. 125-126.

Bednarczyk J., Kośko A. 1975, *Badania archeologiczne na stanowisku 2 w Dobieszewicach, pow. Mogilno*, „Sprawozdania Archeologiczne" 27, pp. 197-226.

Bednarczyk J., Romańska A. 2015, *Karczyn/Witowy stan. 21/22. Birytualne cmentarzysko kultury przeworskiej z Kujaw*, Poznań–Inowrocław, Instytut Prahistorii UAM, Fundacja Ochrony Dziedzictwa Kulturowego Społeczeństw Kujaw „Cuiavia".

Bernat S. 1971, *Bursztyn w podczerwieni*, „Problemy" 27/12, pp. 36-37.

Błażejewski A. 2012, *The Amber Road in Poland. State of research and perspectives*, „Archaeologia Lituana" 13, pp. 57-63.

Bochnak T. 2014, *Importy celtyckie w kulturze przeworskiej i oksywskiej na ziemiach polskich w młodszym okresie przedrzymskim. Zróżnicowanie – drogi napływu – kontekst kulturowy*, Rzeszów, Wydawnictwo Uniwersytetu Rzeszowskiego.

Chętnik A. 1952, *Przemysł i sztuka bursztyniarska nad Narwią*, „Lud" 39, pp. 385-415.

Cofta-Broniewska A. 1970, *Warsztaty produkcyjne z okresu wpływów rzymskich w Jacewie pow. Inowrocław*, „Sprawozdania Poznańskiego Towarzystwa Przyjaciół Nauk" 34/1, pp. 93-94.

– 1972, *Badania archeologiczne w Jacewie pow. Inowrocław w 1968 roku*, „Komunikaty Archeologiczne" 1, pp. 44-54.
– 1975, *Badania archeologiczne w Inowrocławiu i powiecie inowrocławskim w latach 1963-1975*, „Wiadomości Archeologiczne" 40/3, pp. 411-417.
– 1976, *Rozwiane wątpliwości*, „Z Otchłani Wieków" 42/2, pp. 119-123.
– 1978, *Osada z okresu wpływów rzymskich na st. 4b w Jacewie pow. Inowrocław*, „Komunikaty Archeologiczne" 2, pp. 143-147.
– 1979, *Grupa kruszańska kultury przeworskiej. Ze studiów nad rozwojem regionalizmu społeczeństw Kujaw*, Seria Archeologia 11, Poznań, Wydawnictwo Naukowe UAM.
– 1984, *Amber craft in Kuiavia in the era of Przeworsk Culture*, „Archeologia Polona" 23, pp. 149-165.
– 1990, *Z dziejów badań nad późnym okresem lateńskim i okresem wpływów rzymskich na Kujawach*, „Komunikaty Archeologiczne" 5, pp. 63-79.

– 1993, *Badania stanowiska 18 w Gąskach, gmina Gniewkowo, woj. bydgoskie*, „Ziemia Kujawska" 9, pp. 201-224.
– 1999, *Amber in the material culture of the communities of the region of Kuiavia during the Roman Period*, in: B. Kosmowska-Ceranowicz, H. Paner (eds.), *Investigations into amber. Proceedings of the international interdisciplinary symposium Baltic amber and other fossil resins 997 Urbs Gyddanyzc*, Gdańsk, Muzeum Ziemi PAN, pp. 157-175.
Cofta-Broniewska A., Bednarczyk J. 1998, *Miejsce obrzędowe z doby neolitu i schyłku starożytności w Inowrocławiu, st. 58*, Poznań, UAM.
Cofta-Broniewska A., Kośko A. 1976a, *Łojewo, gm. Inowrocław, woj. bydgoskie. Stanowisko 4*, „Informator Archeologiczny. Badania 1975", pp. 138-139
– 1976b, *Konary, gm. Dąbrowa Biskupia, woj. bydgoskie. Stanowisko 28*, „Informator Archeologiczny. Badania 1975", pp. 126-127.
– 2002, *Kujawy* w *pradziejach* i *starożytności*, Inowrocław–Poznań, ARCHmedia.
Danielewski M. 2016, *Sieć grodowa na Kujawach oraz jej funkcje od połowy X do końca XIII wieku*, Publikacje Instytutu Historii 130, Poznań, Instytut Historii UAM.
Dąbrowska T. 1988, *Wczesne fazy kultury przeworskiej. Chronologia – zasięg – powiązania*, Warszawa, Państwowe Wydawnictwo Naukowe.
– 1997, *Kamieńczyk. Ein Gräberfeld der Przeworsk-Kultur in Ostmasowien*, Monumenta Archaeologica Barbarica 3, Kraków, Secesja.
Demetz S. 1999, *Fibeln der Spätlatène- und frühen römischen Kaiserzeit in den Alpenländer*, Frühgeschichtliche und Provinzialrömische Archäologie. Materialien und Forschungen 4, Radhen/Westfalen, Marie Leidorf.
Domański G. 1999, *Szlak czarnomorski*, in: J. Andrzejowski (ed.), *COMHLAN. Studia z archeologii okresu przedrzymskiego i rzymskiego w Europie Środkowej dedykowane Teresie Dąbrowskiej w 65. rocznicę urodzin*, Warszawa, Fundacja Przyjaciół Instytutu Archeologii, pp. 179-180.
Dulęba P., Markiewicz J. 2023, *The lords of the Amber Road: amber storage, distribution and processing in the early Iron Age and the La Tène period*, „Praehistorische Zeitschrift" 98/1, pp. 310-337.
Godłowski K. 1974, *Chronologia okresu późnorzymskiego i wczesnego okresu wędrówek ludów w Polsce północno-wschodniej*, „Rocznik Białostocki" 12, pp. 8-110.
Grygiel M. 2004, *Problem chronologii i przynależności kulturowej materiałów o charakterze jastorfskim z Brześcia Kujawskiego, woj. kujawsko-pomorskie, w świetle ostatnich badań nad problematyką okresu przedrzymskiego w Polsce*, in: H. Machajewski (ed.), *Kultura jastorfska na Nizinie Wielkopolsko-Kujawskiej*, Poznań, SNAP, Instytut Prahistorii UAM.
Guldon Z. 1974, *Podziały administracyjne Kujaw i ziemi dobrzyńskiej w XIII-XIV wieku*, Warszawa–Poznań, Państwowe Wydawnictwo Naukowe.
Hennenberg M. 1977, *Proportion of dying children in paleodemographical studies. Estimation by guess or by methodical approach*, „Przegląd Antropologiczny" 43/1, pp. 105-114.
Kaczanowski P. 1987, *Drochlin. Ciałopalne cmentarzysko kultury przeworskiej z okresu wpływów rzymskich*, Zeszyty Naukowe Uniwersytetu Jagiellońskiego. Prace Archeologiczne 40, Kraków, UJ.
Kokowski A. 1989, *Strefa sepulkralna cmentarzyska z późnego podokresu lateńskiego*, in: A. Cofta-Broniewska (ed.), *Miejsce pradziejowych i średniowiecznych praktyk kultowych w Kruszy Zamkowej. Województwo bydgoskie, stanowisko 13*, Seria Archeologia 35, Poznań, Wydawnictwo Naukowe UAM, pp. 65-124.
– 1991, *Udział elementów celtyckich w strukturze cmentarzyska birytualnego w Kruszy Zamkowej, woj. Bydgoszcz, st. 13. Próba falsyfikacji pojęcia „grupy kruszańskiej"*, „Archeologia Polski" 34/1-2, pp. 115-149.
Kostrzewski J. 1919, *Die Ostgermanische Kultur der Spätlatènezeit* 1-2, Mannus-Bibliothek 18-19, Leipzig–Würzburg, Curt Kabitzsch.
Kośko A., Łaszkiewicz T., Szułdrzyński A., Cofta-Broniewska A. 1974, *Krusza Zamkowa, pow. Inowrocław. Stanowisko 3*, „Informator Archeologiczny. Badania 1973", p. 146.
Liana T. 1970, *Chronologia względna kultury przeworskiej we wczesnym okresie rzymskim* „Wiadomości Archeologiczne" 35/4, pp. 429-491.

Makiewicz T., Michałowski A. 1997, *Pracownia obróbki bursztynu w osadzie kultury przeworskiej w Sosnowcu koło Śremu (woj. poznańskie) na tle porównawczym*, „Folia Praehistorica Posnaniensia" 8, pp. 139-156.

Olędzki M., Podolska-Rutkowska I., Rutkowski W. 2024, *Celtic 'Guardians' of the Central Polish Section of the Amber Route*, „Praehistorische Zeitschrift" 99/1, pp. 370-383.

Olędzki M., Zawilski P., Borowska-Strugińska B. 2018, *Latkowo 50 gm. Inowrocław. Cmentarzysko szkieletowe z późnego okresu rzymskiego*, Łódź, Instytut Archeologii UŁ, SNAP.

Olędzki M., Ziąbka L., Kędzierski A. 2014, *Janków near Kalisz – Celtic trade post on the Amber Route*, in: J. Čižmářová, N. Venclová, G. Březinová (eds.), *Moravské křižovatky. Středni Podunaji mezi pravěkem a historii*, Brno, Moravské zemské muzeum, pp. 243-254.

Olędzki M., Ziętek J. 2017, *Typologia, chronologia i rozprzestrzenienie fibul typu A.162 na terytorium kultury przeworskiej*, in: E. Droberjar, B. Komoróczy (eds.), *Římské a germánské spony ve střední Evropě. Archeologie barbarů 2012*, Spisy Archeologického Ústavu AV ČR Brno 53, Brno, Archeologický ústav AV ČR Brno v.v.i., pp. 363-383.

Skowron J. 2016, *Relikty warsztatów rzemieślniczych w kulturze przeworskiej. Zarys problematyki*, in: A. Michałowski, M. Teska, M. Żółkiewski (eds.), *Viator per devia scientiae itinera. Studia nad problematyką okresów przedrzymskiego, rzymskiego, wędrówek ludów i wczesnego średniowiecza. Professori Thaddeo Makiewicz septuagenario amici et socii*, Seria Archeologia 53, Poznań, Wydawnictwo Naukowe UAM, pp. 51-70.

Stawicki M. 2015, *Szlak bursztynowy i Askaukalis na terenie dzisiejszego Inowrocławia – próba odmitologizowania miejskiej legendy*, „Ziemia Kujawska" 24, pp. 115-122.

Stolpiak B. 1980, *Z badań nad wyrobami szklanymi w kulturze przeworskiej na Kujawach Centralnych*, „Archeologia Polski" 25, pp. 167-181.

Tempelmann-Mączyńska M. 1983, (Review) *„Grupa kruszańska kultury przeworskiej", Aleksandra Cofta-Broniewska, Poznań 1979*, „Slavia Antiqua" 29, pp. 269-276.

– 1985 *Die Perlen der römischen Kaiserzeit und der frühen Phase der Völkerwanderungszeit im Mitteleuropäischen Barbaricum*, Römisch-Germanische Forschungen 43, Mainz am Rhein, Philipp von Zabern.

Teska M. 2013, *Celtycka bransoleta z Pojezierza Iławskiego*, in: A. Jaszewska (ed.), *Z najdawniejszych dziejów. Grzegorzowi Domańskiemu na pięćdziesięciolecie pracy naukowej*, Zielona Góra, Wydawnictwo Fundacji Archeologicznej, pp. 167-179.

Twardo S. 2003, *Zapinki oczkowate serii pruskiej z terenu północno-wschodniego Mazowsza*, „Studia i Materiały Archeologiczne" 11, pp. 165-247.

Wielowiejski J. 1980, *Główny szlak bursztynowy w czasach Cesarstwa Rzymskiego*, Wrocław–Warszawa–Kraków–Gdańsk, Ossolineum.

– 1981, *Bursztyniarstwo*, in: J. Wielowiejski (ed.), *Prahistoria Ziem Polskich* 5. *Późny okres lateński i okres rzymski*, Wrocław–Warszawa–Kraków–Gdańsk, Ossolineum.

– 1984, *Na drogach i szlakach Rzymian*, Warszawa, Państwowy Instytut Wydawniczy.

– 1996, *Der Forschungsstand über den Hauptweg der Bernsteinstrasse*, in: Z. Woźniak (ed.), *Kontakte längs der Bernsteinstrasse (zwischen Caupt Adriae und den Ostseegebieten) in der Zeit um Christi Geburt. Materialien des Symposiums – Kraków 26. – 29. April 1995*, Kraków, Muzeum Archeologiczne, pp. 57-63.

Wielowiejski P. 1991, *Pracownie obróbki bursztynu z okresu wpływów rzymskich na obszarze kultury przeworskiej*, „Kwartalnik Historii Kultury Materialnej" 39/3, pp. 317-361.

Wnuczek I. 2012, *Strój Markomanów – Swebów w starszym okresie rzymskim*, „Materiały i Sprawozdania Rzeszowskiego Ośrodka Archeologicznego" 33, pp. 179-267.

Woźniak Z. 1982 (Review), *„Grupa kruszańska kultury przeworskiej ze studiów nad rozwojem regionalizmu społeczeństw Kujaw", A. Cofta-Broniewska, Poznań 1979*, „Sprawozdania Archeologiczne" 33, pp. 272-278.

Zielonka B. 1970, *Rejon Gopła w okresie późnolateńskim i rzymskim*, „Fontes Archaeologici Posnanienses" 20, pp. 147-218.