

THE OXFORD HANDBOOK OF

**THE EUROPEAN
BRONZE AGE**

Edited by

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and

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PREFACE

THIS Handbook in the Oxford series covers an area and period that have produced much spectacular new evidence in recent years. The enormous volume of new publications in all parts of Europe makes it ever harder to keep up with the progress of research, in the Bronze Age as in so many other periods. The authors in this volume, all experts in their field, have provided overviews of the topics assigned them which, it is hoped, will go some way to make it easier for students, specialists, and the interested layperson to get up to date with the latest information in the field.

A range of sources are used for the illustrations. Wherever possible, permission to reproduce copyright material has been obtained from the copyright holder, to whom we offer thanks. In a few cases this was not possible, because the author was dead, the publishing house defunct, or for similar reasons. Every effort has been made to obtain permission in all other cases, but should there be any errors or omissions, we would be pleased to insert the appropriate acknowledgement in any subsequent edition of this publication. Where composite illustrations are involved, making use of many small images, these have been redrawn after the original publication, the source of which is cited.

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Anthony Harding and Harry Fokkens

May 2012

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CHAPTER 42

THE BRONZE AGE IN THE POLISH LANDS

JANUSZ CZEBRESZUK

INTRODUCTION: THE NATURAL ENVIRONMENT

With the exception of its southern reaches, the entire landscape of Poland, which lies in central Europe, was transformed by glacial activity in the Late Pleistocene. Along the north-south axis, distinct geomorphological zones can be distinguished. The Baltic coastline constitutes the northern border, delimiting a broad belt of plains and lakes extending for 400 to 500 km. Further south stretch uplands and a low mountain range (the Świętokrzyskie, or Holy Cross Mountains) that widens towards the east. Mountain ranges also make up the southern limits of the territory: the Sudeten mountains to the west and the Carpathians (Tatra Mountains) to the east, reaching c. 2,500 m above sea level. The majority of the country is drained by two large rivers: the Oder and the Vistula. Because the two watershed regions are not clearly demarcated, there were no natural barriers to impede cultural exchanges. The river system facilitated free interactions among people; the southern mountain ranges, with a series of convenient passes and depressions, such as the Moravian Gate separating the Sudeten and the Carpathian mountains, were never an obstacle.

The presence of fertile soils was critical for prehistoric settlement. Black earth derived from loess is found mainly in the upland belt. The most extensive portion of the lowlands contained enclaves of black earth of hemihydrate origin (soils formed from the slow drying of peat bogs). The largest of these pockets are located in Kuyavia, along the lower Oder, and in a few places in Great Poland.

The scarce natural resources that were accessible in the Bronze Age were not evenly distributed across the country. The choicest flint pieces come mainly from the uplands (Jura flint, banded flint, and chocolate flint) and from the lower Oder basin (so-called Rügen flint). Salt deposits and brine sources were exploited within a wide belt covering Pomerania, Kuyavia, the eastern part of Great Poland, and the western part of Little Poland. There is evidence that brine wells existed in the region as early as the Neolithic.

In this region during the Bronze Age the key natural resource was abundant amber. It was found mainly along the coast, especially in the Vistula delta, where deposits were the richest and culturally most significant (Czebreszuk 2009).

One of the most distinct climate boundaries also passes through Polish territory, roughly following the Vistula river, separating the continental climate zone (to the east) and the Atlantic climate zone (to the west).

HISTORIC REGIONS OF POLISH TERRITORY

Poland can be divided into several historical regions (Fig. 42.1a), the most significant of which have seen important archaeological research. The northern regions comprise Pomerania, with a western part (principal city: *Szczecin*) and an eastern part (Gdańsk), and Masuria, which extends eastwards. Great Poland (capital *Poznań*), Kuyavia, and Masovia (Warsaw) occupy the central part of the country, whereas the south is divided into Lower Silesia (Wrocław) and Upper Silesia (Katowice), and Little Poland, with principal cities *Kraków* (in the west) and *Rzeszów* (in the east).

CULTURAL CHRONOLOGY

In Poland the Bronze Age extends from 2300/2200 to 800 cal BC. Since there is cultural continuity, the period overlaps with the early phases of the Iron Age (Hallstatt period, 800–400 cal BC).

The Bronze Age is associated with the emergence of new forms of social organization characterized by internal stratification (Czebreszuk 2001; Kadrow 2001), with a military aristocracy constituting the ruling class. Communities of this type relied on extensive cultural contacts and placed high value on prestige. Their value system created a demand for goods made of 'strategic' or even 'exotic' materials of distant provenance, such as metals or amber. These communities possessed stable settlement structures, often with a central fortified settlement. They had developed well-organized agricultural and diversified manufacturing systems that used metal tools as standard.

Nevertheless, it must be noted that in the Bronze Age not all communities inhabiting Poland can be considered representative of Bronze Age culture. The Polish territories were split along a cultural divide, which corresponded to the regional divisions of Europe at the time. The main boundary ran from the Moravian Gate in the south to the Bay of Gdańsk in the north (see Fig. 42.1a). A secondary line of division ran parallel to the northern edge of the uplands and split the eastern half of the territory into northern and southern parts. Polish territory can thus be divided into three cultural zones: western, south-eastern, and north-eastern.

The western zone belonged to an area that was key throughout the duration of the European Bronze Age. It constituted the north-eastern or eastern border of such cultural complexes as the Únětice culture, the Tumulus culture, and the Hallstatt culture. The upland regions in south-eastern Poland formed the northernmost reaches of the Carpathian Basin cultures. The societies inhabiting the north-eastern zone followed a different rhythm of life, and remained isolated from the cultural processes that defined the Bronze Age elsewhere.

The littoral zone extending from the Oder delta to the Vistula delta have a particular character because of the diverse ecological niche of the coastline, which helped to stabilize settlement

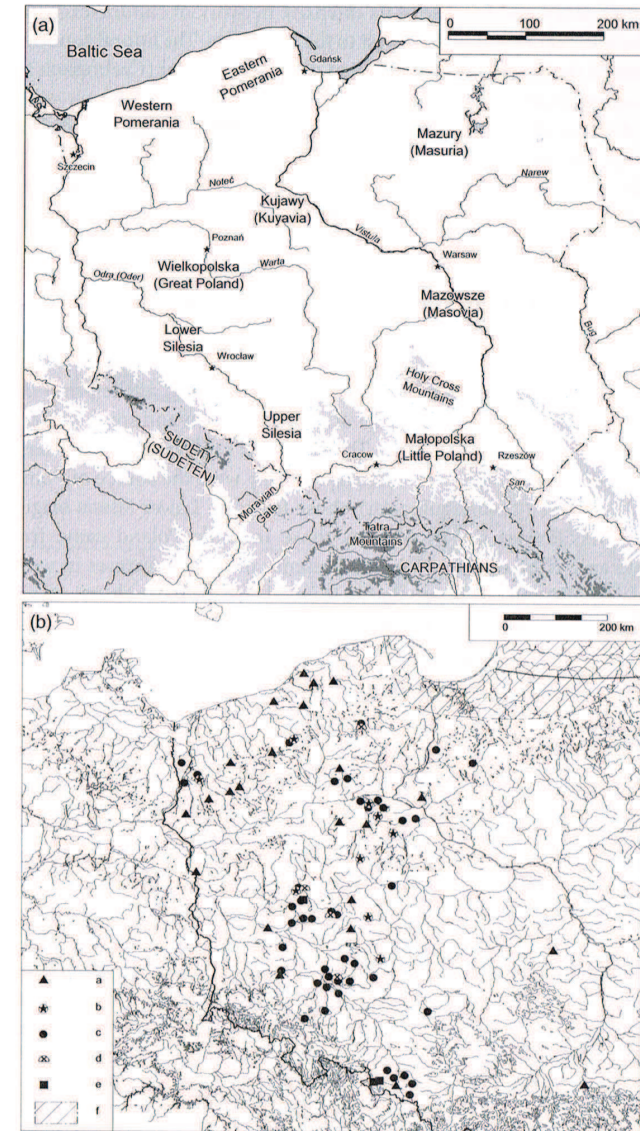


FIG. 42.1 (a) Poland: main features of landscape and cultural regions; (b) Finds used to trace the coastal route and the first amber route in the Early Bronze Age: a. imported bronze objects; b. gold objects; c. amber; d. 'princely kurgans'; e. fortified settlements; f. Sambia, centre of amber extraction.

throughout prehistory, and because of its extensive network of cultural exchanges, stretching across the Baltic shore and further west to the North Sea. The littoral zone owed its privileged character in the Bronze Age to abundant deposits of amber (Czebreszuk 2009), which had become a commodity in great demand across Europe.

The basic division of the Bronze Age into early, middle, and late is valid above all in the western part of Poland. However, this represents a schematic approach that obscures the specifics of the area. Furthermore, absolute dating techniques, including radiocarbon dating and dendrochronology, have made chronometric dating widely applicable.

THE CULTURAL SEQUENCE

The earliest period of the Early Bronze Age may be designated as the proto-Bronze phase and extended from 2300/2200 to 2000 cal BC. In the western and south-eastern zones it is associated with the Bell Beaker culture. Three distinct centres of Bell Beaker provenance have been traced: Jutland and north-eastern Germany were the source of Pomeranian and Kuyavian Bell Beakers (Czebreszuk 2001); those found in Lower Silesia originated in the Czech lands (Makarowicz 2003); whereas those in Little Poland came from Moravia (Budziszewski and Włodarczak 2010). The presence of Beaker features in western Poland attests to the participation of the population in a wide network of cultural exchanges and in the transformation of the social structure (Czebreszuk 2001). Little Poland, on the other hand, is one of the rare examples of indisputable migration from Moravia of a small group of representatives of the Bell Beaker culture (Budziszewski and Włodarczak 2010).

The presence of the Bell Beakers was always a catalyst for cultural change. In western Poland, around 2300/2250 cal BC, they form the context of the earliest traces of the Únětice culture (proto-Únětice phase), which first appeared in Lower Silesia (Machnik 1977). Over time, clusters of the Únětice culture reached Kuyavia and the lower Oder (Koško 1991). At the same time, the Mierzanowice culture started to flourish in Little Poland (Kadrow and Machnik 1997) and reached its heyday during that period (see the early Mierzanowice phase: Kadrow and Machnik 1997: 29–53). Around 2000 cal BC significant changes occurred in both regions. The Mierzanowice culture increasingly cut its contacts with the West, whereas the watershed of the upper Oder and Vistula rivers became a real cultural barrier.

The Únětice culture itself followed more than one course. Toward the end of the third millennium BC it was characterized by the scarcity of metal objects, and its settlement structures and social organization were rather simple. Around 2000 cal BC—in the lowlands earlier (before 2000 cal BC, Rassmann and Schoknecht 1997) than in Lower Silesia (after 2000 cal BC)—the Únětice culture underwent a substantial transformation. Metal objects showing the specific Únětice style began to be manufactured using local ore deposits from the Harz Mountains and the eastern Alps, located directly south-west of the region (Krause 2003). Significantly, tin-bronze also started to be widely used. Highly developed metallurgy ushered in social stratification. This is confirmed by the finds of rich barrows (kurgans; the so-called princely tumuli) (Fig. 42.2c); prestige objects, including bronze weapons, and especially halberds and fluted stone mace-heads; imports testifying to a broad network of cultural contacts, including gold, amber, and foreign bronze objects; and complex settlements with stable, fortified centres (Fig. 42.2a).

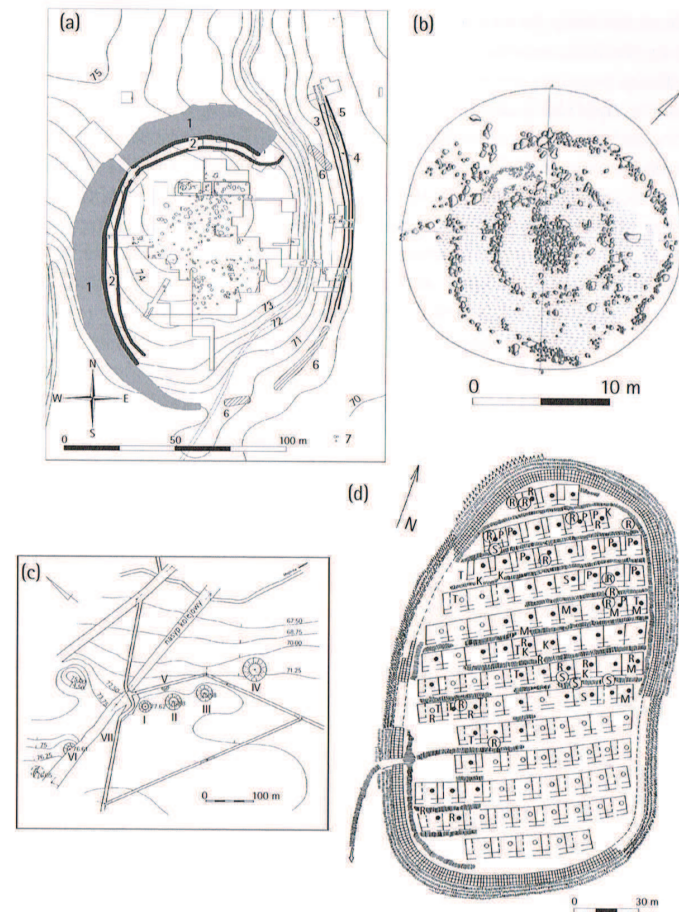


FIG. 42.2 (a) Plan of the Early Bronze Age settlement at Bruszczewo (Great Poland). 1 – moat 2 – palisade, 3 – inner fascine (bundle of brushwood) 4 – outer fascine, 5 – wall of double vertical pillars and horizontal planks wedged between them, 6 – fortifications traces found by magnetometry (Müller, Czebreszuk, and Kneisel 2010); (b) Ludgierzowice (Lower Silesia), kurgan of the Tumulus culture (Butent 1992); (c) Plan of the barrow cemetery at Łęki Małe (Great Poland), including reconstructed kurgans (Kowiańska-Piaszykowa 2008); (d) Plan of Biskupin (Kuyavia), including the location of artefacts related to: M. metallurgy, T. weaving, K. parts of harness, R. farming, S. bone-working, P. fishing (Niesiołowska-Wędzka 1991).

The situation east of the divide after 2000 cal BC was radically different. The Mierzanowice culture still existed in Little Poland (classic and late phases), and its development was increasingly fragmented, as evidenced by a diversity of local styles during the late Mierzanowice phase (Giebułtów, Szarbia, Pleszów, and Samborzec groups: Kadrow and Machnik 1997).

Throughout the Early Bronze Age north-eastern Poland was, on the other hand, home to evolving para-Neolithic societies (Jóźwiak 2003). Although their pottery showed evidence of contacts with the population of western Poland (Manasterski 2009), their way of life, dependent on gathering and fishing and only marginally on agricultural activity, remained unaltered.

After 2000 cal BC, a new cultural phenomenon, the Trzciniec culture, began to spread from the west (Kuyavia and Great Poland) to the east (Masovia, and beyond the borders of today's Poland), and to the south (Little Poland). The Trzciniec culture, derived from late Bell Beaker groups (Czebreszuk 2001), attained its most distinct archaeological form east of the Vistula (Makarowicz 2010). The arrival of the Trzciniec culture in Little Poland is considered an example of southward migration (Górski 2007: 99–100), estimated to have taken place around 1650/1600 cal BC (Górski 2007: 91).

THE MIDDLE BRONZE AGE

The decline of the Early Bronze Age was marked by the arrival of new cultural trends from the north-west (the Nordic culture: Fogel 1988) and from the south-west (the Tumulus culture: Gedl 1992). The former was the first to appear: the earliest traces of the Nordic culture in western Pomerania date to some time after 1700 cal BC. The Tumulus culture, on the other hand, appeared in Lower Silesia and Little Poland a little later, most likely post-1600 cal BC. Despite visible differences in material culture (in particular, differing styles of metal objects), both these cultural groups maintained cultural contacts and were part of a unified cultural sphere, extending over the same regions as in the Early Bronze Age. Settlement stabilized in this period. Both groups were initially known for their graves, especially kurgans (Fig. 42.2b), and hoards of metal objects. Over time, their cemeteries grew larger and their settlements longer lasting (Makarowicz 2010).

Eastern Poland was still home to a complex of internally diverse phenomena of the Trzciniec culture. Strong connections to earlier prehistoric periods were still visible in Masovia. The region is known mainly for its dune settlements, and an economy that relied only on farming. In Little Poland the Trzciniec culture was in turn characterized by stable settlements whose inhabitants focused on agricultural activity and used kurgan cemeteries, thereby continuing the practices of earlier groups (the Corded Ware and Mierzanowice cultures; see Górski 2007).

THE LATE BRONZE AGE/HALLSTATT PERIOD

The Late Bronze Age in Poland is synonymous with the expansion of the Lausitz or Lusitanian culture, which constituted the north-easternmost branch of the Urnfield cultures. The oldest Lausitz artefacts found in Silesia and Great Poland date to after 1400 cal BC (Harding 2000: 18). The Lausitz culture brought the stabilization of settlement, with societies coming to inhabit particular micro-regions permanently. The cemeteries, such as Kietrz in Upper Silesia, were utilized over long periods of time, starting with the Tumulus period and ending with La

Tène (Gedl 1980). The eastward expansion of the Lausitz culture was rather complex. In Little Poland the process consisted mainly in a gradual migration of populations from Silesia. The migrations began around 1300 cal BC (Górski 2007: 91) and were a major step in overcoming the cultural barrier separating the river basins of the upper Vistula and upper Oder. The presence of the Lausitz culture in north-eastern Poland is more difficult to explain, since there is no doubt that it differed significantly from its counterparts in Lower Silesia, Great Poland, Kuyavia, and Little Poland. For instance, finds of bronze objects became more abundant (Dąbrowski 1997; Blajer 2001), and the anthropogenic component in palaeobotanical data has been shown to be smaller (Dąbrowski 1997: 101–4). At the same time the south-eastern part of Poland, in the San River Basin, constituted a distinct cultural sphere, formed by the Tarnobrzeg group that was open to influences both from the steppes as well as from Carpathian Ruthenia to the south (Czopek 1996). As a civilization, the Lausitz culture constituted a period of uninterrupted prosperity lasting nearly a thousand years (from c.1400/1300 to 400 cal BC).

After 800 cal BC the influence of the Hallstatt culture reached Lower Silesia, which has been confirmed by recent archaeological finds (recent research by Bogusław Gediga: Gediga 2007). The traces of the Hallstatt culture are concentrated in Lower Silesia and scattered throughout a wide belt extending from Great Poland to Kuyavia. The Hallstatt C phase is associated with a new phenomenon, the construction of fortified settlements such as Biskupin (Fig. 42.2d).

SETTLEMENT AND ECONOMY

Open settlements, composed of rectangular post-built houses surrounded with multi-function pit features, are the most common in Poland and can be found throughout the Bronze Age. The number of settlements known from the Middle Bronze Age is smaller, which may be the result of insufficient research on this period.

In the Early and Late Bronze Age, and the Hallstatt period, there were stable micro-regions often with fortified settlements at the centre. The earliest examples have been found in Bruszczewo in Great Poland (see Fig 42.2a: fortifications dating back to the twentieth century cal BC—Czebreszuk and Müller 2004). In the Carpathian foreland strongholds of the Otomani-Füzesabony culture dating back to the seventeenth and sixteenth centuries cal BC have been uncovered (Gašaj 2002: Fig. 10) (see Chapter 44).

A complex of fortified settlements located on the border of Kuyavia and Great Poland, and comprising several settlements, was particularly important to settlement practices in the Late Bronze Age and the Hallstatt period. Biskupin is the most systematically researched of these settlements: it forms a compact group of 13 rows of houses (see Fig. 42.2d), each composed of up to a dozen identical houses (Niesiołowska-Wędzka 1991). In Lower Silesia the remains of at least two complete homesteads (Wrocław-Milejowice 19 and Stary Śleszów 17) have been excavated. They were enclosed by palisades and thus intentionally isolated, which may indicate that their residents enjoyed a privileged status (Gediga 2007).

From a broader perspective of the evolution of settlement practices and variations in population density, the Bronze Age was characterized by dynamic changes. Increasing settlement density has been observed in the Early Bronze Age, in the settlement area of the Únětice

and Mierzanowice cultures. The most significant population growth was noted in the Late Bronze Age and the Hallstatt period (Kurnatowski 1992), when networks of micro-regions, or stable rural communities composed of multiple villages, were formed in many regions, in particular in western and southern Poland.

Fortified settlements located in wet environments have yielded detailed insights into the economy. Farming was developing on three fronts: extensive cereal cultivation; leguminous plant cultivation; and small horticultural plots. In the Early Bronze Age there is evidence of the cultivation of barley (*Hordeum vulgare*), emmer wheat (*Triticum dicoccum*), and einkorn (*Triticum monococcum*) (Czebreszuk and Müller 2004: 263–72). There are also indications that millet (*Panicum miliaceum*) may have been sown on a small scale in the Early Bronze Age (Müller et al. 2010: 262). Leguminous plants known already in the Early Bronze Age include peas (*Pisum sativum*) and lentils (*Lens culinaris*). In addition, seeds of cultivated poppy (*Papaver somniferum*) and dill (*Foeniculum vulgare*) were found in Bruszczevo (Müller et al. 2010: 260–4).

The range of plants differed significantly in the Late Bronze Age and Hallstatt period (Harding et al. 2004: 67–119; Müller et al. 2010: 250–87). Millet gained in importance alongside wheat and barley. Oats (*Avena*) were also grown. The most popular leguminous plants included peas, broad bean (*Vicia faba*), and lentils. There are also traces of flax (*Linum usitatissimum*), gold of pleasure (*Camelina sativa*), poppy, field mustard (*Brassica rapa*), and turnip rape (*Brassica rapa* subsp. *oleifera*).

Animal husbandry was intensive at the time, as indicated by large deposits of post-consumption bone waste, as well as layers of manure (Early Bronze Age finds in Bruszczevo; Czebreszuk and Müller 2004: 264–6). A system of tree exploitation was also in place, which may indicate that some species were used for winter grazing (Müller et al. 2010: 576–661). Cattle were the chief livestock, whereas pigs and sheep/goats were of secondary importance. The presence of the horse should also be noted (Müller et al. 2010: 288–314).

The quantities of pig and sheep/goat bones in the Late Bronze Age/Hallstatt period were comparable (Biskupin: Kostrzewski 1950: 39–71). In the Sobiejuchy settlement, however, sheep/goats were found in larger numbers (Harding et al. 2004: 120–64).

The material recovered contained relatively small quantities of fish bones (Makowiecki 2003). This does not necessarily reflect the importance of fishing as a food source; the situation of most Bronze Age settlements, which were located on lake islands and peninsulas, must suggest that fish formed an important component of the diet; in addition, fish bones do not survive well on archaeological sites. Gathering was another way of obtaining food. Acorns, hazelnuts, wild strawberries, and apples/pears were an important part of the diet (Müller et al. 2010: 250–87).

The first instances of anthropogenic pressure, which led to a number of localized ecological disasters, are also associated with the Early Bronze Age. Land exploitation around Bruszczevo may serve as an example. The area was settled uninterruptedly from c.2100/2000 to c.1600 cal BC, with a central fortified settlement present at least in the twentieth and eighteenth centuries BC. The steady and intensive occupation of the land had a significant impact on the environment. Wooded areas in the immediate vicinity of the settlement (2–3 km), composed mainly of small, scattered groups of trees (Müller et al. 2010: 232–7), were drastically depleted (Müller et al. 2010: 78). Human activity (farming) and cattle grazing led to the degradation of the top humus layer and intensified erosion (Müller et al. 2010: 270). The consequences of the changes in water composition in the adjacent lake were even more serious. Studies have showed the presence of algae, eggs of human and animal parasites, and

spores of coprophilous fungi. It is very likely that during some periods in the Bronze Age the water in the lake was undrinkable, or even toxic to humans and animals. In the case of Bruszczevo we can assume that the destruction of the environment by humans was the chief reason for the abandonment of the settlement.

BURIALS

The shift from inhumation to cremation during the Middle to Late Bronze Age transition is among the most significant cultural changes to occur in the period. This does not mean, of course, that burial customs before and after the transition were homogeneous. On the contrary, funerary practices have always varied across time and space. In the Early Bronze Age three types of burial practice mean that three geographical areas can be identified: the north-west, the south-west (the northern and southern part of the Únětice culture settlement area respectively), and the south-east (the Mierzanowice culture).

In the south-east, men and women were buried in positions that were the mirror image of each other. The deceased were placed on their side, aligned west-east with the face to the south. Males lay on their right side, with heads facing west, females on their left side, with heads facing east (Machnik 1977). Gender differentiation was not clearly marked in burial practices in the south-west. The dead were buried in the same posture: on their left side, in the foetal position, oriented on a north-south axis, with the head pointing south and face turned to the east.

In the north-west, or in the northern part of the Únětice settlement area, cemeteries, although less numerous, were more spectacular, for instance Łęki Małe (see Fig. 42.2c; Czebreszuk 2001: 84–8), as well as in Brusy and Przysieka Polska (Czebreszuk 2009). This may be due to an unequal distribution of the right to burial which, in the north, was granted mainly to members of the upper class. This hierarchy indicates greater social stratification in the Únětice culture in the north than in the south. It should also be noted that the rare extended burials, apart from a few isolated finds such as one found at Bruszczevo where a mat made of osier was used to wrap the body of the deceased (Müller et al. 2010: 724–9), diverged from the burial positions that were a feature of the south. The Bruszczevo male was placed on his right side on an east-west axis, with his head pointing west, and face turned south.

By the Middle Bronze Age the custom of constructing barrows (kurgans) became widespread, and is characteristic of the Tumulus culture (see Fig. 42.2b). Kurgans are most often mounds of heaped rocks arranged in the form of stars, rings, or paved areas (Gedl 1992). In eastern Poland kurgans were only one among a great variety of elements characteristic of the Trzciniec culture (Makarowicz 2010). This diversity is undoubtedly a sign of a low level of cultural integration of the population inhabiting the area.

Cremation—the new practice of depositing the ashes of the cremated dead in a cinerary urn—grew in popularity during the Middle to Late Bronze Age transition. In large, long-lived cemeteries utilized from the Tumulus to the Lausitz cultures, inhumation burial was gradually replaced by cremation. The shift was documented, for example, in the large cemetery at Kietrz which was among the largest in the entire Urnfield zone, with approximately

four thousand excavated graves (Gedl 1980: 82). The cemeteries were used continuously from the Middle Bronze Age up to the later stages of La Tène. This continuity constitutes a major socio-religious characteristic, and proves not only the stability of settlement structures but also the existence of a universal right to burial which is not evident in earlier periods.

MATERIAL CULTURE

In the Bronze Age pottery plays a key role, not just in terms of utilitarian production but as an important cultural identifier. Next to pottery, however, a new group of objects begin to emerge. Metal products become a marker of individual and group identity, especially among the elites in the western part of the area. The artefacts fall into four stylistic categories, characteristic of Únětice, the Tumulus cultures, the Urnfields, and the Hallstatt culture.

Pottery

Bronze Age pottery displays a variety of styles that can be divided into a few basic groups. The sequence of stylistic transformations can be best observed in western Poland, and particularly in Lower Silesia and Great Poland. It opens with a series of Únětice styles that are technologically highly developed (thin walls despite the frequently large size of the vessels, and very carefully detailed body) and diverse in form. The most characteristic trait of the Únětice style after 2000 cal BC was carination (angular profiling of the body), more evocative of the shape of metal than clay vessels (Fig. 42.3, A2).

After 1500 cal BC, following an interval, a new pottery style emerged that can be defined as knobbed ware of the late Tumulus and the early Lausitz periods (Fig. 42.3, A1). Its main feature, besides its high technological standard, is its specific ornamentation: knobs were applied to the surface or shaped as protrusions from inside the body of the vessel.

In the Late Bronze Age an array of Lausitz styles developed, characterized on the one hand by regional diversity and on the other by shared features, including a clear division into cooking ware and table ware, a high technological level (especially in table ware), and a great variety of pot types, including zoomorphic and miniature vessels, rattles, and shoe-shaped containers (Figs 42.3, A3–6).

Recent Hallstatt-period finds in Lower Silesia (Gediga 2007; 2009), and in particular the increasingly frequent discoveries of painted pottery, have allowed a specific Hallstatt style to be identified. The importance of the cemetery at Damasław, Lower Silesia (Gediga 2009), must be noted in this context. One of its wealthy chamber graves (no. 4270) yielded a unique find (Fig. 42.3, B): a ritual clay cart with painted ornaments (Gediga 2007: Fig. 9; 2009: Fig. 9).

The development of the northern (Pomerania) and the north-eastern (Masuria, Masovia) regions followed a different course. Pottery styles show less stability and inferior craftsmanship. The 'Trzciniec style', the most typical of the region, is the best exam-

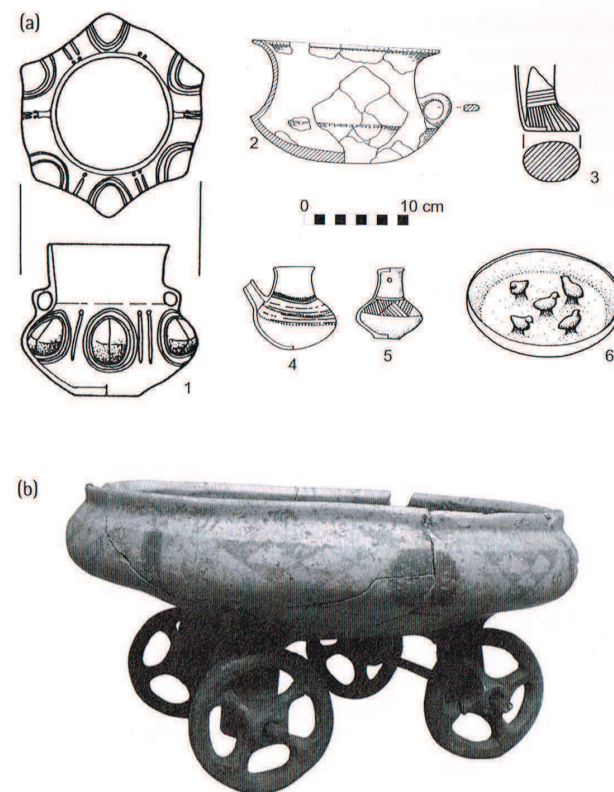


FIG. 42.3 Bronze Age/ Hallstatt pottery from Poland. A1. Swarzynica (Kaczmarek 2002: table 2: D9); A2. Łęki Małe (Kowiańska-Piaszykowska 2008); A3. Biernatki (Kaczmarek 2002: table 31: B1); A4–5. Śródka (Kaczmarek 2002: table 24: B2–3); A6. Wartosław (Kaczmarek 2002: table 22:14). B. Damasław (Lower Silesia), grave 4270 (Gediga 2009).

ple. A single form of pottery was very common in the early phases of the Trzciniec group: a large pot with an S-shaped profile and a decorative strip running from the neck of the pot across the body (Czebreszuk 2001). Other ceramic features were strictly regional. It is therefore difficult to speak of any unifying Trzciniec style in Poland (Makarowicz 2010). Similarly, in the Late Bronze Age, the so-called Lausitz pottery (Dąbrowski 1997) greatly diverged in style from the technological standards and stylistic patterns used in the west.

In south-eastern Poland a group of Early Bronze Age Mierzanowice styles has been recorded. Initially mugs, jugs, and amphorae were the most popular; later on jars (Kadrow and Machnik 1997). The Mierzanowice style became increasingly fragmented until, in the late phase of the culture, there were as many as four distinct stylistic units corresponding to four discrete groups that emerged within the Mierzanowice culture. Trzciniec styles were

also present in the area, and quickly took on a distinctly regional character (Górski 2007). Their specific nature was also the result of influences from the Carpathian Basin (Otomani-Füzesabony and Piliny cultures). In the Late Bronze Age, starting c.1300 cal BC, Lausitz styles reached Little Poland (Górski 2007).

Metallurgy

Stylistic transformations in metallurgy in Poland have been the subject of many detailed studies (Blajer 1990; 2001). Metal was widely and continuously exploited through the Bronze Age only in western Poland. In the east there are only intermittent periods when metal objects were common. This tendency is particularly evident in south-eastern Poland and has been observed in the Middle and beginning of the Late Bronze Age (objects stylistically reminiscent of the Carpathian Basin cultures: Blajer 2001: 268–79), as well as at the close of the Hallstatt period (Blajer 2001: 293–7).

The area was home to three major stylistic groups of metal products, namely Únětice (Blajer 1990), Tumulus (Blajer 2001), and Lausitz. Experts have further subdivided them into a number of specific styles. It has been widely accepted that the metallurgy of the Lausitz culture in the Hallstatt period (especially in Lower Silesia) already possesses the key features of the metallurgy of the Hallstatt culture (Blajer 2001: 289; Gediga 2007).

Nordic metalworking was continuously present in the north-western part of Poland, starting in the Middle Bronze Age (Fogel 1988), which confirms the hypothesis that western Pomerania belonged within the Nordic cultural zone. There is some evidence that a local metallurgical industry was present in Poland already in the Early Bronze Age. Recent research indicates the long-term presence of metallurgical activity at Bruszczewo. Metallurgical analysis of artefacts from there has identified them as corresponding to metal types of Rüdiger Krause's III–IV horizon (Krause 2003; later modified by Rassmann: Müller et al. 2010:713–22). As early as the second millennium BC bronze metallurgy was a major element in the culture of the societies inhabiting western Poland, despite the fact that the region was remote from any known metal deposits. In the Middle Bronze Age there are indications of metallurgical production, for example in the Szczepidło settlement in the middle Warta Valley (Makarowicz 2010). Regional styles of metal objects testify to the presence of a local industry, a continuing phenomenon in western Poland from the Early Bronze Age on (Blajer 2001).

INDUSTRIES BASED ON OTHER RAW MATERIALS

The stabilization of settlement observable in the Bronze Age favoured the manufacture of a variety of objects. Research at Bruszczewo, as well as in Late Bronze Age/Hallstatt period settlements on the border of Kuyavia and Great Poland, has uncovered the evidence of horn- and bone-working, carpentry, quarrying, a flint industry, weaving and basketry, as well as amber-working.

Bone and horn artefacts have been preserved in large quantities in peat environments. These raw materials were used to manufacture various implements, such as chisels, pickaxes, flat hoes, hammers, pins, many types of handle attachment, and (especially popular) awls or

needles (Müller et al. 2010: 662–99). Bone was also used, among other things, to fashion hoes and weaving blades made of scapulae, characteristic of the Early Bronze Age (Müller et al. 2010: 662–99). Antler and bone were also widely used in manufacturing various tools in Hallstatt settlements (Drzewicz 2004).

The varied Early Bronze Age flint industry has received much attention in the literature (recent studies: Libera 2001). The flint industry was particularly well developed in south-eastern Poland (Kadrow and Machnik 1997; Libera 2001). In western Pomerania, on the other hand, flint was important in the manufacture of Scandinavian daggers (Czebreszuk 2001). These were prestige rather than utilitarian objects. With the Únětice culture metal began to replace flint and stone tools. This phenomenon is even more pronounced in the Late Bronze Age when stone implements had become rare, in particular in western Poland.

The use of metal tools in carpentry had a big influence on the development of this industry. This is true in the Bruszczewo settlement, in the construction of houses and defensive structures, dated by dendrochronology to the early eighteenth century cal BC, built entirely using metal tools (Müller et al. 2010: 576–661). Carpenters made use of elaborate wood joints (Müller et al. 2010: 166–231). Similarly, a whole range of building techniques were known in the eighth century cal BC at Biskupin (Kostrzewski 1950: 238–85).

There is also evidence to support the existence of other areas of production. Numerous weaving implements document the development of the textile industry (Kostrzewski 1950: 132–60), as does pottery with imprints of woven fabric. Traces of wattle were preserved in peat deposits, including the spectacular wicker walls at Bruszczewo, dating to the early eighteenth century cal BC (Müller et al. 2010: 166–231).

Amber production, known since the Neolithic, continued to flourish in the Bronze Age. In the Early Bronze Age manufacturing centres were concentrated along the coast, in particular in the lower Vistula Valley (Czebreszuk 2009). Over time, amber workshops spread inland and are found, for example, in the Komorowo settlement (Bukowski 2002). The daily use of amber objects has been confirmed throughout the Bronze Age, especially in the western part of the country. In the Únětice culture two distinct styles can be distinguished: northern and southern. Stunning disc-shaped artefacts were uncovered in large quantities in the north, especially in cemeteries (kurgans with many imported bronze objects, gold, complex wood and stone constructions: Czebreszuk 2009). Beads dominate in the south, as part of composite necklaces (most frequently with coiled copper-wire ornaments). Beads are also the main product in the Middle Bronze Age, and especially in the Hallstatt period, when amber production and exchange intensified (Bukowski 2002).

OTHER ASPECTS OF SOCIAL LIFE IN THE BRONZE AGE

An analysis of the Polish Bronze Age cannot ignore certain phenomena that are local variants of larger, Europe-wide tendencies (such as hoard deposition, or the establishment of communities along major trade routes), or the result of specific processes that have no equivalent elsewhere on the continent (e.g. structures of Bruszczewo-Łęki Małe type, or the network of settlements with Biskupin as the most spectacular).

The Deposition of Hoards

The practice of depositing hoards of bronze objects was common throughout the Bronze Age, in Poland as elsewhere (Blajer 2001) (see Chapter 7). It was most frequent in western Poland and, during certain periods, in the south-east. The local practice is part of a widespread phenomenon observed in Early Bronze Age groups, the Tumulus, Urnfield, and Hallstatt cultures. Wojciech Blajer's detailed analysis has shown that the reasons for depositing metal objects were multifold (Blajer 2001: 253–8). Wet areas seem to have been the preferred location throughout the Bronze Age, as can be observed in Pomerania (Blajer 2001: Fig. 39).

Trade Route Communities

Among the cultural innovations of the Bronze Age was the development of extensive socio-cultural contacts. This in turn entailed different cultural structures from those of the Neolithic: Bronze Age communities are found not only in clusters (forming what was known as the 'archaeological group' in traditional scholarship), but can also take on a linear character. Communities started to concentrate along trade routes. In the Early Bronze Age (Fig. 42.1b) and the Hallstatt period (Bukowski 1993: Fig. 2), Poland was part of an extensive network of contacts. Maps representing the distribution of finds for both periods show a belt roughly 100 km wide extending from the Moravian Gate in the south, through Lower Silesia, Great Poland, Kuyavia, to the Vistula delta. The Early Bronze Age finds recorded in this area include amber, gold artefacts, bronze objects imported from remote regions of Europe, as well as remarkable 'princely kurgans' (see Fig. 42.2c) and fortified settlements (see Fig. 42.2a). During the Hallstatt period amber becomes more abundant in this zone (Bukowski 2002: Map IV), as do Hallstatt imports (Bukowski 1993: Fig. 2).

The cultural structures that developed along the lower Vistula constituted the northern stretches of what can be termed the first and second amber routes. In the Early Bronze Age (the first half of the second millennium cal BC) the first amber route in Europe (Czebreszuk 2009) ran from the Bay of Gdańsk through Kuyavia, Great Poland, Silesia, and the Moravian Gate to the upper Tisza, and then from the Middle Danube to the Adriatic and beyond to the Peloponnese. The second route, used in the Hallstatt period, overlapped with the earlier one along the Polish stretch. From the Moravian Gate, however, it headed for the eastern Alps, then to the Caput Adria, and terminated in central Italy. The modification of this southern stretch of the route (when it stopped in Italy) took place after 1200 cal BC. It is worth noting that a large concentration of house-urns and face-urns dating to that period were found in the Gdańsk area; they are analogous to similar finds made in Italy.

In addition to the amber route, seaways were becoming increasingly popular trade routes (see Fig. 42.1b). One of them connected the lower Vistula region, Pomerania, and Mecklenburg with Jutland, and further away, with the North Sea, the British Isles, and Atlantic Europe.

Case study 1: Bruszczewo- Łęki Małe Type Structures

The best example of the transformations that affected Ūnětice society after 2000 cal BC is the cluster known as the Kościan group (Czebreszuk 2001: 149–50). It covers an area 50 km long

(north-south) by 20 km wide (west-east), located on the main route connecting Lower Silesia and Kuyavia, and continuing to the amber-rich Vistula delta. This small region yielded a particularly large number of Early Bronze Age finds. The structures uncovered included a fortified settlement in Bruszczewo; at least two kurgan cemeteries of so-called princely tumuli (Łęki Małe and Przysieka Polska); hoards (among others those from Czempień, Granowo, Naclaw, Poniec, and Szczodrowo); and other settlements. The stability of settlements in this region has been confirmed by excavations at Bruszczewo (see Fig. 42.2a). According to the earliest radiocarbon date, the main defensive structures (two palisades and a moat separating the settlement from the higher ground to the north) were erected in the twentieth century cal BC (Czebreszuk and Müller 2004: 293–310). On the other hand, palynological data shows that a settlement (most likely unfortified) existed as early as the twenty-first century cal BC (Müller et al. 2010: 66). Dendrochronology was used to determine the age of supporting defensive structures in the eastern part of the site (two wicker walls and a dividing wall made of double vertical pillars and horizontal planks wedged between them), and vestiges of buildings. They were constructed between 1797 and 1779 BC (Müller et al. 2010: 244–7). The fortifications were most likely destroyed in the seventeenth century BC, as the latest fills of rubbish pits indicate (Czebreszuk and Müller 2004: 293–310). Bruszczewo was home to a metallurgist's workshop. Other artefacts documented on this site included a tuyère, crucibles, clay stands, a stone mould for bracelets, finished products in the form of daggers, axes, and ornaments at different wear stages (one of the dagger blades was shortened by repeated sharpening), as well as metal scraps collected for remelting, and droplets from the casting of liquid metal. Metal analyses have shown that metal objects made of types of copper characteristic of horizons III and IV, according to Rüdiger Krause and Knut Rassmann, were manufactured and used locally, which suggests an extended period of metallurgical activity at Bruszczewo, spanning the period 2000 to 1600 cal BC (Müller et al. 2010: 712–22). The intensive exploitation of the natural environment included cultivation of cereals, legumes, vegetables, and other domesticated plants; cattle and pig husbandry, and the breeding of small herbivores, which brought about the localized ecological disaster discussed above.

In the direct vicinity of the Bruszczewo settlement on the other side of the Samica river, there was a large cemetery of tumuli, of which only the chance discovery at Przysieka Polska survives (Czebreszuk and Müller 2004: 317–29). Another better-preserved barrow cemetery was located several kilometres north at Łęki Małe (see Fig. 42.2c) (Kowiańska-Piaszykowa 2008). It was composed of a row of at least 14 tumuli extending along the edge of the valley of the Mogilnica river. Excavations in five of them revealed complex stone and wood structures, richly equipped inhumation burials, with bronze, gold, and amber objects, and much pottery. Such a large number of linearly aligned tumuli indicates the long-term use of the cemetery, which undoubtedly served as the burial ground of the elite or ruling class. The cultural importance of this site has been confirmed by the concentration of bronze hoards in the area, associated with the Kościan group (Blajer 1990).

Significantly, the area occupied by the Kościan group constituted a small enclave isolated from both the Głogów and Wrocław clusters on the Oder, and from the Kuyavia cluster to the north-east, while acting as a bridge between the two. Its location along a trading route was a key factor in the emergence within the Kościan group of settlement and cultural structures that can be called 'Bruszczewo-Łęki Małe structures'. They were typically characterized by a stable situation that lasted a few centuries, which was evidenced both in the (central) settlement and in the cemeteries containing the remains of members of the elite.

This hierarchical funerary practice signals the presence of a well-established and most likely hereditary ruling class, at the head of an efficiently functioning community that was capable both of constructing a spectacular complex like Bruszczevo and of maintaining it in good order for a few hundred years. The community owed its long-term prosperity in great measure to its location along the amber route, which has been confirmed by the find of a well-preserved amber bead at Bruszczevo in a cultural layer dated to the nineteenth century cal BC (Müller et al. 2010: 696).

Phenomena such as Bruszczevo-Łęki Małe may be interpreted in terms of proto-state structures possessing a stable governing body, an extensive network of extra-regional contacts, varied artisanal production, and a well-organized food economy. This entity lasted for at least two hundred years and its decline dates to the seventeenth century cal BC.

Case Study 2: The Biskupin Settlement Network

A complex of over a dozen contemporaneous fortified settlements on the border of Kuyavia and Great Poland was particularly important for Bronze Age/Hallstatt settlement (Harding and Rączkowski 2010). Biskupin is the most extensively researched among these sites (see Fig. 42.2d). Designed and constructed as a compact settlement, Biskupin comprises 13 rows of buildings each composed of up to a dozen or more identical houses (Niesiołowska-Wędzka 1991). Each settlement most likely functioned as a centre for a particular community unit within a network of territorial structures. As a whole, the settlement complex dates to the eighth century cal BC. Dendrochronological data has helped us narrow down the chronology of some of the settlements. Wood used in construction in Biskupin was cut between 750 and 708 BC (Ważny 2009: 63). Individual timbers at Sobiejuchy have been dated to c.750 BC (Harding and Rączkowski 2010). The date of a piece of timber used in a construction in Izdebnó was determined as 'circa or after' 729 BC (Ważny 2009: 72). Wood sampled in Ostrowite Trzemeszeńskie was dated to 'circa or after' 706 BC. In summary, it can be said that a network of territorially organized units extended across the border region between Kuyavia and Great Poland. Communities belonging to that network were internally well-organized, and functioned on the basis of division of labour. They undoubtedly possessed governmental structures capable of mobilizing collective effort. Significantly, however, there is no evidence of this type of elite within the settlement structure of Biskupin, where all houses are identical and traces of specialized activity (metallurgy, weaving, use of draught animals, etcetera) are fairly evenly distributed among many households (see Fig. 42.2d) (Niesiołowska-Wędzka 1991: Fig. 3).

There can be little doubt about the existence of a widespread network of small units concentrated around fortified settlements in the eighth century cal BC. The presence of this type of settlement structure opens up a number of questions. To what extent were these territorial units independent of one another? What was their political status? These and other questions should be the subject of further research. The potential information resource of these Hallstatt period fortified settlements cannot be overemphasized. The remains of wooden fortifications have been preserved in all the sites, and are suitable for dendrochronological dating, which might enable us to reconstruct a detailed chronology of construction in each settlement, that is, to create a specific micro-history of the region covering the eighth century cal BC. Moreover, each of these (peat-based) settlements contains a wealth of potential

data relating to human-environment relationships, as well as an abundant collection of artefacts of organic materials.

CONCLUSION

During the Bronze Age the territory of Poland constituted the eastern fringes of the culturally most advanced region of Europe. It was divided along a major cultural border into two parts: east and west. Throughout the period, the south-west (Lower Silesia and Great Poland, along with the narrow zone leading through Kuyavia to Eastern Pomerania) belonged to a zone delimited by the Harz, the Rudawy (Erzgebirge), and the Eastern Alps (Harding 2000: Fig. 13.1, bottom). It saw a sequence of cultural transformations: Únětice culture–Tumulus culture–Urnfield cultures–Hallstatt culture. The north-west (western Pomerania), on the other hand, remained longest within the Nordic cultural sphere of influence (the sequence here being Únětice culture–Nordic culture). Both the north-western and the south-western parts of Poland continued to interact; this can be traced through cross-cultural borrowing and imports.

The eastern half of Poland was isolated from the mainstream transformations of Bronze Age Europe. Little Poland played a particularly significant role as the northern fringe of the Carpathian Basin culture, and gained in importance especially after 1700 cal BC. Societies occupying the north-eastern part of Poland had a different lifestyle, rooted in earlier periods of prehistory.

The 'civilizational geography' outlined here was shaped by two major factors. The first, social, consisted of changes leading to increased internal group stratification. These processes predate the Bronze Age, and are marked by the appearance of Bell Beakers. It is no coincidence that the area they occupied underwent a sweeping cultural transformation in the Bronze Age.

The second factor derives from the first: in an internally stratified society, military aristocracy plays a key role. The need to reassert its position dictates its activity; and the principal means of satisfying this need is material culture, and in particular the acquisition of goods, especially products made of exotic materials ('strategic raw materials'). This in turn contributed to the creation of a Europe-wide network of exchanges. Poland was home to amber deposits of the highest quality, and in the Bronze Age amber became one of the raw materials most sought after in Europe, including the Mediterranean zone.

From the diachronic point of view, the Bronze Age in the Polish territory can be divided into two long periods of prosperity, separated by a relatively short interval. The first period of steady growth spans the Early Bronze Age (c.2300–1600/1500 cal BC) and is associated with the Únětice culture. The second period of uninterrupted growth is the Late Bronze Age/Hallstatt period (c.1400/1300–400 cal BC), during which the Lausitz culture initiated an unprecedented process of cultural transformation (the stabilization of settlement and increased population density). The intervening Middle Bronze Age (c.1600/1500–1400/1300 cal BC), associated with the Tumulus culture, saw a crisis in settlement practices, although there was no disruption to cultural contacts, which persisted, especially among the inhabitants of the western half of the country.

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