

CONCERNING THE DEVELOPMENT OF METALLURGY IN EARLY BRONZE AGE SOCIETIES ON THE POLISH LOWLANDS

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INTRODUCTION

The issue of the use of bronze artefacts and, to a lesser extent, the knowledge of metallurgy among Early Bronze Age societies on the Polish Lowlands has become a permanent element in the canon of archeological literature; one that has been considered both in the margins of research synthesising knowledge concerning the Early Bronze Age Civilisation of Central Europe in this part of the Vistula and Oder river basins, and in specialist studies and articles addressing particular questions.

The cultural classification of metal artefacts has often been hindered by the lack of any major sequences of well-documented cases of the co-occurrence of bronze objects and ceramic vessels. Attention has therefore been focused on the problems of the chronology and typology of the above-mentioned artefacts and on the interpretation of the phenomenon of deposition in diverse natural environments rather than on their taxonomical identification. However, this cultural “discontextualisation” of occurrences of the so-called hoards opened up numerous possibilities for the creation of (sometimes fascinating) concepts of a far-reaching exchange and of the intercultural mechanisms for the distribution of this kind of exotic artefacts (e.g. Blajer, 1992; Bradley, 1998; Hänsel & Hänsel, 1997; Kadrow, 1995; Czebreszuk, 1996; Vandkilde, 1996; Makarowicz, 1998).

The aim of this article is to substantiate hypotheses of the existence of local metallurgical centres in the part of the Polish Lowlands situated on the territory between the middle Warta, Noteć and middle Vistula rivers at the end of the III and first half of the II millennium BC: the period when the communities of Proto Unetice (PUC), Early Unetice (EUC), and Iwno (IC) cultures and Trzciniec Cultural Circle (TCC) were developing there.

The question of the use of metals by the PUC and the EUC populations has not been dealt with in a systematic way, being considered only in the margins of some reference publications – mainly monographs of cemeteries associated with the life of the above-mentioned cultural communities (Schäfer, 1987; Koško, 1991; see also Bokiniec, Czebreszuk, 1993) – or of some more general publications dealing mainly with issues other than the formulation of broader conclusions concerning the mechanisms of the collection of bronze artefacts in Proto- and Early Unetice burial sites (Koško, 1979; Makarowicz, 1998). Only in the wake of the publication of the results of F. Holter’s pre-war research into two EUC cemeteries in the region of Krajna, northern Poland did the range of available sources expand (Schäfer 1987).

For a long time, the literature of this subject reflected the view that IC communities were dependent on Unetice metallurgical centres. This paradigm of a peculiar determinism was expressed with the help of hypotheses affirming that the cultural environment of the North was dominated not only by the patterns, but also by the materials and artefacts of the South. W. Sarnowska expressed in her publications (Sarnowska, 1969; 1975; 1982) an extreme version of this concept, believing the IC to be a local group of the Unetice culture (UC). Other researchers classified bronze finds from the region settled by Iwno communities, dated to the BA1b–BA2 period, as imports from the UC circle (Knapowska-Mikołajczykowa, 1957; Machnik, 1977; 1978, 125ff; Koško, 1979, 79ff, tab.11; Gedl, 1982). It should be stressed, however, that they did not question the fact that the above-mentioned hoards belonged to the IC communities (e.g. Blajer, 1990, 86ff).

A comparatively small number of researchers dealt, instead, with the question of the development of metallurgy among the societies of the lowland

division of the Trzciniec complex (Koško, 1979; Dąbrowski, 1982; Blajer, 1990; 1998; Czebreszuk, 1997; Kłosińska, 1997; Makarowicz, 1998). This subject has often been taken up in the margins of studies with a wider spatial scope, covering the whole TCC, and a small number of problematic articles have also presented some artefacts found mainly in Trzciniec graves and hoards np. Gardawski, 1951; 1959; 1969; Gardawski, Wesołowski, 1956; Gedl, 1975; Miśkiewicz, 1978; Blajer, 1990; 1998; 1999; Dąbrowski, 1985). It has not, however, been accompanied by a deeper reflection on the provenance of metals found in Bronze B and Bronze C sepulchres and hoards in the North. These were generally associated with some vaguely defined inspirations from foundry centres of Tumulus culture (TuC) populations, in particular with the styling of Tumulus bronzes (Koško, 1979; Dąbrowski, 1985; Blajer, 1990; 1998; Czebreszuk, 1996; Kłosińska, 1997; Makarowicz, 1998).

An attempt at a regional synchronisation of sources of ceramics and metal artefacts relating to the Kujawy region was made in the 1970s by A. Koško (Koško, 1979, 77ff, 93, tab. 17). This resulted in, among others, the formulation of an original hypothesis concerning a special role played by IC communities in the process of reconstruction (following the disintegration of the Globular Amphora culture) and the control over the trade routes of a far-reaching exchange of raw materials and of amber and bronze objects (Koško, 1979, 168ff). This exchange was taking place along the North-South axis, and its main beneficiaries were supposedly the Iwno and Unetice communities, and later the Trzciniec and Tumulus communities.

In summarising the current state of research, it should be observed that the predominant view in the papers referred to was that the metallurgy of the Lowlands population was not autonomous – being dependent on raw materials, finished artefacts and patterns from the South. This view is still predominant today, particularly in textbook presentations and synthesising papers. It is based on the conviction (generally justified) that the North was tardy in its adaptation of the achievements of the Early Bronze Age civilisation of Central Europe – an adaptation which was, moreover, no more than selective. Sometimes, this view would be expressed as *ex meridium lux*, a peculiar paraphrase of G.V. Childe's earlier assertion concerning the oriental origins of the Bronze Age in Europe.

Not until the late 1980s, and particularly the 1990s, did changes occur in terms of both the number and knowledge of the physical sources available (archaeological finds) and of conceptualisation. One of the

questions analysed at that time was the use of bronze by IC communities. A hypothesis was also put forward in support of the existence of local metallurgical centres within the confines of post-Iwno structures (Makarowicz, 1998). The question of the acceptance of metal in the Kujawy region, particularly among the communities of Tumulus and Urnfield circles, was addressed by J. Czebreszuk (Czebreszuk, 1997). This author distinguished several phases to this process in this part of the Polish Lowlands over the period between the beginning of the Late Neolithic and the period of Halstatt C, also providing evidence of the local production of metal in BA2 period.

Against the background of the presented state of research into the development of Bronze Age metallurgy in northern Poland, this paper should be treated as a starting point for further exploration of this issue. The first section consists of a collection of archaeological sources providing evidence of the use and production of bronze artefacts by Early Bronze Age communities on the Polish Lowlands, together with their more detailed cultural-chronological identification. The second section presents an attempt to interpret the phenomenon of the adaptation of metals in this region of the European Lowlands in the Early Bronze Age.

PRESENTATION OF SOURCES AND THEIR CULTURAL-CHRONOLOGICAL IDENTIFICATION

This part of the article consists of (1) material evidence of the use of copper and bronze artefacts by the PUC, IC and TCC communities and (2) evidence of the existence of local metallurgical production in the analysed part of the Polish Lowlands in the Early Bronze Age.

1. This evidence is based mainly on the co-occurrence of metal artefacts and ceramic vessels of the above cultural units in well-documented contexts of discovery. The finds of deposited hoards associated with rituals of IC and TCC communities can only indirectly show that the above-mentioned cultural communities used metals, since bronze artefacts are usually found in non-ceramic contexts.

Proto/Early Unetice Culture. P/EUC communities inhabited a number of regions of the Polish Lowlands in the period between 2300 BC and 2150 BC. The only relics of their stay in the area under consideration are a small number of burial sites (Koško, 1991; Czebreszuk, 1996; Makarowicz, 1998).

Direct evidence for the use of metal artefacts (mainly arm and leg ornaments) by the PUC popula-

tion comes from the burial site in Bożejewice, site 8; for EUC communities from site 6 of the necropolis in Śmiardowo Krajeńskie. Bożejewice provided one documented case of the co-occurrence of a metal artefact and PUC pottery (grave 27 – Koško, 1991, 24); whereas in the necropolis of Śmiardowo Krajeńskie, seven graves with metal artefacts occurring together with, among others, vessels (Schäfer, 1987; early phase of cemetery construction – Bokiniec, Czebreszuk, 1993) were recorded. Relevant data is presented in table 1.

The radiocarbon dates from Bożejewice enable the period of use of the burial site to be placed between 2300 and 2150 BC (Koško, 1991). On the basis of the diagnostic features of the ceramic vessels, the early stage of the growth of the necropolis in Śmiardowo Krajeńskie can be generally dated to the period between 2200 and 2100 BC.

Iwno Culture. This cultural unit, which developed on the Polish Lowlands between 2400 and 1800 BC, is sometimes known as a client culture in relation to the UC, in consideration of the significant concentration of finds of Unetice style artefacts on the territory occupied by the IC (Koško, 1979; 1991a; Czebreszuk, 1996; Makarowicz, 1998). At the end of the 3rd – beginning of the 2nd millennium BC, IC communities came to dominate this region in terms of population and territory.

Evidence of the use of bronze products by the Iwno population appears to be provided by the aforementioned hoards, although it should be assumed that these were deposited only by the IC communities and not by peoples not identifying themselves with this grouping (e.g. the Unetice blacksmiths – Koško, 1979). We will return to this question later. More direct evidence is provided by the finds of bronze products together with IC ceramic vessels. These have come primarily from the cemeteries in Śmiardowo Krajeńskie, site 6 (6 graves; – Schäfer, 1987; late phase of cemetery construction – Bokiniec, Czebreszuk, 1993; Makarowicz, 1998) and Skrzatusz (2 graves), as well as from the ruined grave in Srebrnogóra and the ritual construction in Biskupin, site 2 (Grossmann, 1998; Makarowicz, 1998) – see table 1.

On the basis of the characteristic features shown in ceramic and bronze inventories, the period of use of the burial grounds at Śmiardowo Krajeńskie and Skrzatusz by the Iwno communities should be dated to the cusp of the II and III – the beginning of the III phase of the development of IC, i.e. from 2050 to 1950/1900 BC. This partially overlaps with the classical phase of the development of UC. The site at Srebrnogóra dates from a similar period, whilst a somewhat

later date can be attributed to the find at Biskupin, to which a number of the radiocarbon datings from the final phase of use of the ritual site refer (III phase of IC or the initial phase of TH 1, i.e. approximately 1900 BC) (Grossmann, 1998; Makarowicz, 1998a; 1998b).

Trzciniec Cultural Circle. The lowland branch of the TCC group can be placed on the chronological time-scale between the years 1950/1900 to 1400/1300 BC (Makarowicz, 1998b). Within its scope, a range of lesser taxonomical units have been distinguished, at the level of territorial groups or phases of development – so-called horizons (more in Czebreszuk, 1996; Makarowicz, 1998; 1998a). The metallurgy of TCC is closely inspired, particularly during the later stages of its development, by features from TuC – see also the issue of Tumulus style hoards.

The co-occurrence of metal products and ceramic vessels was recorded in the case of TH 1 (the destroyed grave at Bożejewice, site 33), TH 2 (the burial site at Pruszcz Gdański, site 10), TH 5 (burial sites at Gustorzyn, site 1; Marcinkowo, site 1; Wojdal, site 1 and Wolica Nowa, site 2), and TH 6 (settlement at Dobieszewice, site 2) – see table 1.

The above-mentioned findings of metallic artefacts can generally be dated to the period between 1900 and 1400/1300 BC. The site at Bożejewice represents the earliest of these. Somewhat later are the graves of the TH 2 community at Pruszcz Gdański (1800–1700 BC). The period of use of the burial sites of the TH 5 population at Gustorzyn, Marcinkowo, Wojdal, and Wolica Nowa can be tentatively situated in the period from 1500/1450 to 1350/1300 BC, similarly to the settlement at Dobieszewice.

2. Until recently, doubts existed regarding the possibility of local metallurgical production within the described area of the Polish Lowlands during the Early Bronze Age. Numerous deposits of bronze objects and artefacts were linked to the expansion of the Śngtice metallurgical production centres from the South (Silesia, the Czech Republic, Moravia) or the West (western Wielkopolska, central Germany) (Machnik, 1977; 1978; Koško, 1979). Only in recent years have a number of findings been documented of equipment from a metal worker's workshop dating from the aforementioned period (Czebreszuk, 1987; 1996; Makarowicz, 1998; 1998a).

The only firm evidence that local metallurgical production was carried out in the region of the Polish Lowlands under analysis comes from the settlement sites of TCC. Here were found (a) fragments of a founder's crucible, (b) fragments of nozzles of blacksmith's bellows (clay toys) and (c) founder's ladles.

Table 1. Deposits of metal artefacts co-occurring with pottery in the Polish Lowlands (well documented contexts)

Cultural unit	Location, site, context	No of grave	Type of vessel	Metal artefacts	Figure/References
Proto Śpetic Culture	Bozejewice, site 8 (cemetery)	27	Cup with S-shaped profile, ribbon-style handle and cylindrical neck	Ring-shaped object (ring?) from copper or bronze	Koško, 1991
Early Śpetic Culture	Śmiardowo Krajeńskie, site 8 (cemetery)	10	<ol style="list-style-type: none"> 1. Convex beaker with horizontal handle (stopper?) 2. Beaker with S-shaped profile and horizontal handle 3. Beaker with S-shaped profile ornamented with engraved horizontal lines, a moulded button and an engraved sun-ray motif 	Fragments of bronze wire	Schäfer, 1987
		14	Straight-sided bowl with horizontal handle	Fragments of three bronze objects (Ohrringen?)	Schäfer, 1987
		44	<ol style="list-style-type: none"> 1. Two cups with S-shaped profile, and handle ornamented with a horizontal, moulded double ridge 2. Beaker with S-shaped profile, and handle ornamented with a double horizontal relief strip 	Small band (ring, small bracelet?)	Fig. 1:2,3,5,6
		46	Beaker with S-shaped profile and rounded handle (button?)	Small band (arm bracelet?)	Fig. 1:1,4
		49	Vase with convex belly	Six bronze rivets	Schäfer, 1987
		67	<ol style="list-style-type: none"> 1. Vase with convex belly and horizontal handle 2. Convex pot 3. Mortar-shaped beaker with horizontal handle 	Fragment of bronze arm bracelet	Schäfer, 1987

Cultural unit	Location, site, context	No of grave	Type of vessel	Metal artefacts	Figure/References
		85	<ol style="list-style-type: none"> 1. Two-handled amphora 2. Barrel-bellied vase 3. Vase with convex belly and three engraved horizontal lines and triple zigzag motif 4. Flat-sided (conical) bowl with handles on the rim 5. Vase with angular-shaped belly, ornamented with horizontal moulded button and five engraved horizontal lines 6. Beaker with S-shaped profile, ornamented with ten engraved horizontal lines, double moulded button and a sun-ray motif 	<ol style="list-style-type: none"> 1. Spiral bronze ornament 2. Fragments of two spiral bronze ornaments 	Schäfer, 1987
Iwno Culture	Śmiardowo Krajeńskie, site 6 (cemetery)	9a		Two eye-head pins	Fig. 2:4-8
		30	<ol style="list-style-type: none"> 1. Pot with S-shaped profile 2. Beaker with S-shaped profile 3. Mortar-shaped beaker, ornamented with three engraved horizontal lines 4. Vase with angular-shaped belly and horizontal handle 	Fragments of bronze spiral wire	Schäfer, 1987
		33	Two beakers with S-shaped profile	Eye-head pin	Fig. 3:6-8
		40	<ol style="list-style-type: none"> 1. Beaker with S-shaped profile, ornamented with moulded button 2. Beaker with S-shaped profile, ornamented with moulded button and two engraved lines 3. Straight-sided bowl ornamented with horizontal handle (relief strip) and four engraved lines 	<ol style="list-style-type: none"> 1. Low-flanged axe with slanting face 2. Knife blade 	Fig. 4:1-5
		72	<ol style="list-style-type: none"> 4. Mortar-shaped beaker 5. Pot with S-shaped profile 	Arm bracelet	Fig. 2:1-3

Cultural unit	Location, site, context	No of grave	Type of vessel	Metal artefacts	Figure/References
		75	<ol style="list-style-type: none"> 1. Bowl with contoured sides on feet, ornamented with seven horizontal engraved lines 2. Straight-sided bowl 3. Beaker with S-shaped profile, ornamented with four engraved horizontal lines, horizontal handle (button) and sun-ray motif 4. Pot with S-shaped profile 5. Beaker with S-shaped profile, ornamented with four engraved horizontal lines and two slanting moulded ridges 6. Beaker with S-shaped profile, ornamented with seven engraved horizontal lines 	Arm bracelet	Fig. 3:1-5
	Skrzatusz (cemetery)	23	<ol style="list-style-type: none"> 5. Beaker with S-shaped profile, ornamented with four engraved horizontal lines and two slanting moulded ridges 6. Beaker with S-shaped profile, ornamented with seven engraved horizontal lines 	Dagger blade with three rivets	Schäfer, 1987
		24	Beaker with S-shaped profile **	Pieces of metal sheets (tiles)	Schäfer, 1987
	Srebrnogóra (cemetery)	-	Beaker with S-shaped profile, ornamented with nine engraved horizontal lines and a sun-ray motif	<ol style="list-style-type: none"> 1. Four open bracelets with narrowing ends 2. Two pins with flat and pinched heads 3. Fragment of a pin with a semi-circular head 	Fig. 5:1-9
	Biskupin** (ritual)	-	<ol style="list-style-type: none"> 1. Nine bowls with curved sides 2. Five straight-sided bowls 3. Two vases with round bellies 4. Three convex beakers 5. Sixteen pots with S-shaped profile 	Fragment of a chisel	Makarowicz, 1998
Trzciniec Horizon 1	Bożejewice, site 33 (cemetery)	-	Two pots with S-shaped profile: one of them ornamented with a moulded horizontal strip	Low-flanged axe with a semi-circular face	Fig. 6:1-6
Trzciniec Horizon 2	Pruszcz Gdański, site 10 (cemetery)	A	Pot with S-shaped profile, ornamented with six engraved lines	Fragment of a pin with a horizontally rolled end	Fig. 9:1,2

Cultural unit	Location, site, context	No of grave	Type of vessel	Metal artefacts	Figure/References
		B	1. Vase with convex belly, with die incisions under the rim 2. Dish (vase?) on feet	Pin with the head rolled in the shape of a loop	Fig. 9:3-5
Trzeńnic Horizon 5	Gustorzyn, site 1 (cemetery)	-	3. Vase with an angular-shaped belly 4. Tulip-shaped beaker	1. Fragment of a pin 2. Two bracelets ornamented with hatched triangles	Fig. 13:1-4
	Wolica Nowa, site 1 (cemetery)	5	5. Pitcher with the handle protruding above the level of the edge of the spout 6. Two bowls with convex bellies 7. Vase with angular-shaped belly 8. Two beakers with convex spouts 9. Pot with S-shaped profile	3. Tutulus buttons (10 items) 4. Needle-shaped pin	Czebreszuk, 1996
	Marcinkowo, site 1 (cemetery)	-	Pot with S-shaped profile	5. Arm bracelet 6. Pin with enlarged rounded neck	Czebreszuk, 1996
	Wojdał, site 1 (cemetery)	-	1. Vase with angular-shaped belly 2. Pot with S-shaped profile	7. Three single-ringed arm or leg bracelets 8. Three pins	Czebreszuk, 1996
Trzeńnic Horizon 6	Dobieszewice, site 2 (cemetery)	-	3. Two amphorae with no handles 4. Pot with S-shaped profile	Pin with a semi-circular head	Fig. 14:1-9

*Classification of vessels according to Koško, 1979 (simplified)

** Approximate data; for a more detailed profile of inventory see Grossman, 1998; Makarowicz, 1998b

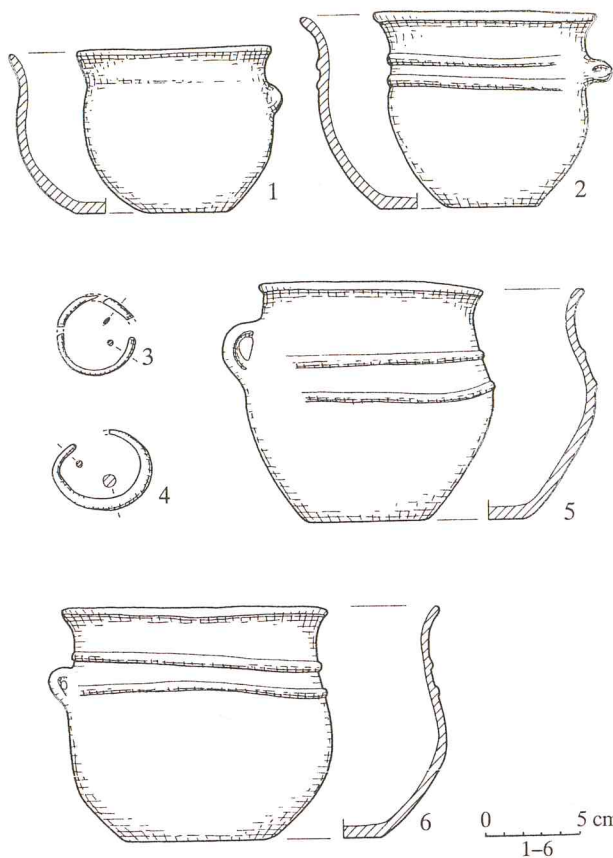


Fig. 1. Śmiardowo Krajeńskie, site 6: 1, 4 – grave 46; 2, 3, 5, 6 – grave 44. Early Śnetice Culture (pottery and bronze artefacts) – after Schäfer, 1987.

a. The fragments of a founder's crucible, recorded in the region between the middle Warta, lower and middle Vistula and the Noteć rivers, originate from the TH 4 community settlement in Goszczewo, site 14 (Fig. 10:1–3; Fig. 11 – Czebreszuk 1987; 1996; 1997). Thanks to metallurgical analysis, it has been established that the crucible was most probably used for smelting lead (Czebreszuk, 1997, 100). The Goszczewo settlement can be dated approximately to the period 1750–1650 BC. Osadę z Goszczewa należy datować generalnie na okres 1750–1650 BC (Czebreszuk, 1996; Makarowicz, 1998a, 1998b).

b. The clay tips of two nozzles of blacksmith's bellows (clay toyers) were recorded in the settlement site of the TH 2 community in Rybiny, site 17 (Fig. 7:3,4), Pietrzyków, site d1 (Fig. 7:2), and Konin, site U (Fig. 7:5) (Makarowicz, 1998). A chemical analysis of the Rybiny toyers failed to provide any positive results, owing to the poor state of preservation of the artefacts (worn inner surfaces).

Six radiocarbon datings were obtained from the Rybiny site, the combined calibration of which permits the site to be dated to approx. 1750 BC. The remaining two settlements linked to TH 2 appear to demand a similar or slightly later chronology (1750–1650 BC) (Makarowicz, 1998b).

c. Clay ladles in varying states of preservation were recorded at the TH 2 population settlement in Szczepi- dło, site 2 (1 example) and at the community settle- ment in Babia, site 6, which combines features of the TH 4 and TH 5 (Fig. 12; fragments of two examples) (Makarowicz, 1998). A chemical analysis of the sub- stance covering the named artefacts has yet to be car- ried out. An indirect link with metallurgy is suggested by the traces of fire visible on their surface.

On the basis of the characteristic features of the ceramic vessels found at the sites, the Szczepi- dło

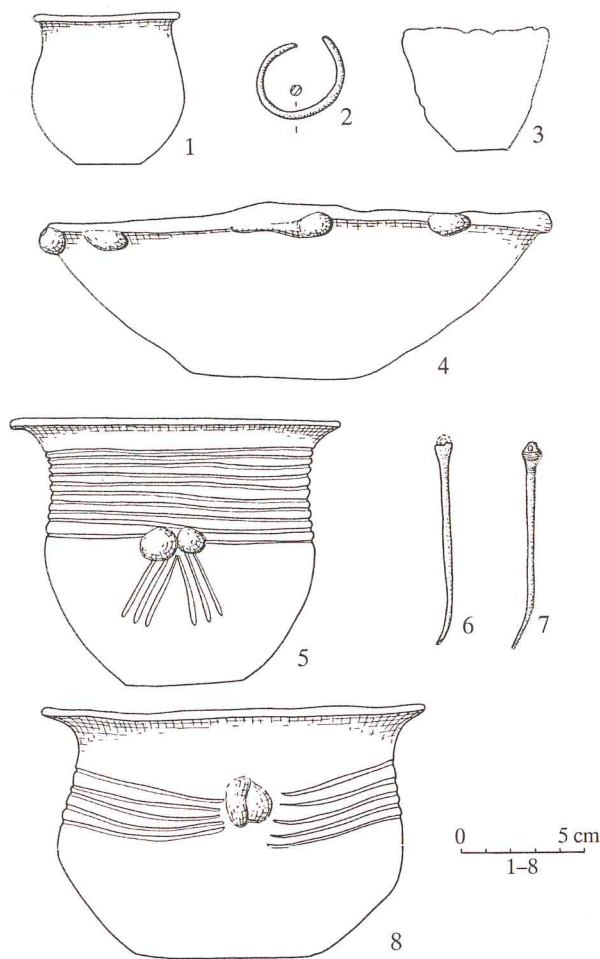


Fig. 2. Śmiardowo Krajeńskie, site 6: 1–3 – grave 72; 4–8 – grave 9a. Iwno Culture (pottery and bronze artefacts) – after Schäfer, 1987.

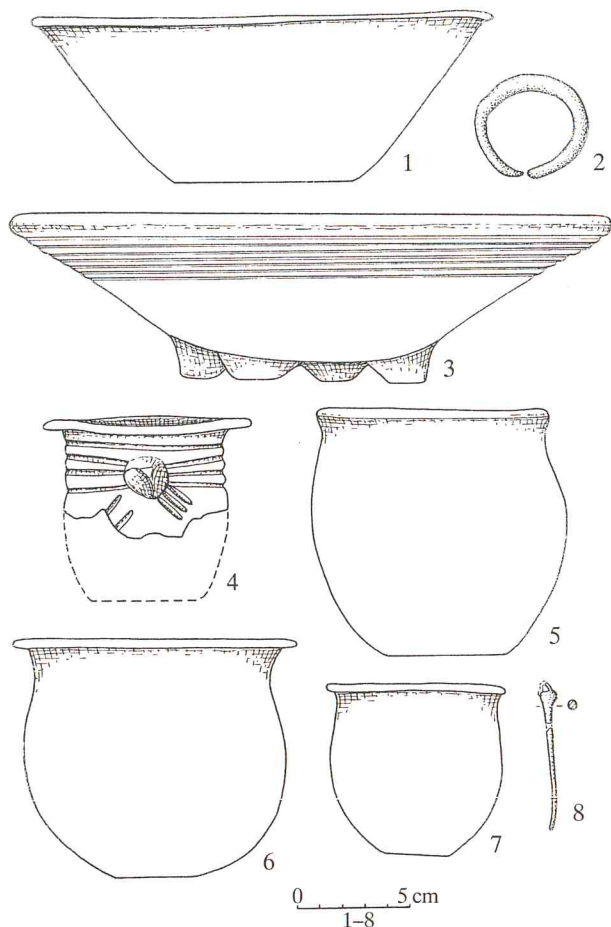


Fig. 3. Śmiardowo Krajeńskie, site 6: 1–5 – grave 75; 6–8 – grave 33. Iwno Culture (pottery and bronze artefacts) – after Schäfer, 1987.

settlement should be placed in the period between 1700–1600 BC, whilst the settlement in Babia belongs to 1650–1600 (Makarowicz, 1998b).

EARLY BRONZE AGE METALLURGY ON THE POLISH LOWLANDS – THE OUTLINE OF AN INTERPRETATION

The period of prosperity for metallurgical production in the analysed part of the Polish Lowlands actually began at the end of the 3rd and beginning of the 2nd millennium BC. Until that time, there were only sporadic finds of copper and bronze objects (mainly ornaments) in the above-mentioned area among the goods of the communities of the Bandkeramik, Funnel Beaker and the Globular Amphora cultures. Clearer signs of the interest of the Lowlands communities in metal objects occurred together with

the influx of the PUC and EUC groupings and the stabilisation of the first enclaves of the Early Bronze Age Civilisation of Central Europe (Machnik, 1977; 1978; Koško, 1979; 1991; 1991a; Czebreszuk, 1996; 1997; Makarowicz, 1998) in this region. However, qualitative changes came only with the development of metallurgical centres of the classical UC in the South and West and the rise of the IC in the North.

The Late Neolithic IC communities, initially alien to the Unetice culture, genetically linked with the Bell Beakers (BB; compare the so-called northern European province of BB – Czebreszuk, 1996; 1998) and the late Single Grave Culture (SGC), began to show some interest in their south-western neighbour. In the 1970s, the contacts between the Unetice and Iwno communities, which resulted in (among others) the occurrence of Unetice-style bronzes in the North and amber artefacts in the South, became the subject of an interpretation, still given credence today, hypothesising the existence of para-commercial links between populations of the two groupings (Koško, 1979; Czebreszuk, 1996; Makarowicz, 1998). Support for these links was to be provided by the

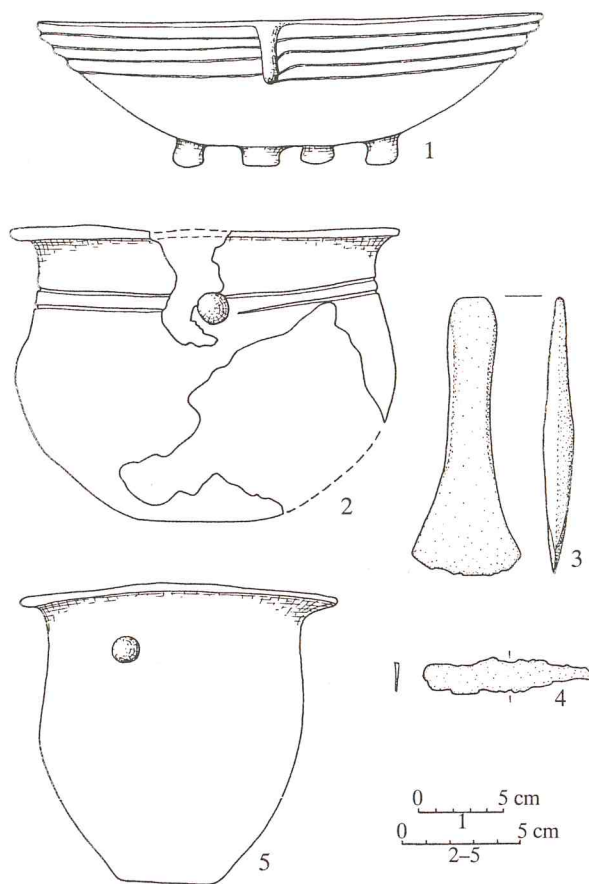


Fig. 4. Śmiardowo Krajeńskie, site 6: 1–5 – grave 40. Iwno Culture (pottery and bronze artefacts) – after Schäfer, 1987.

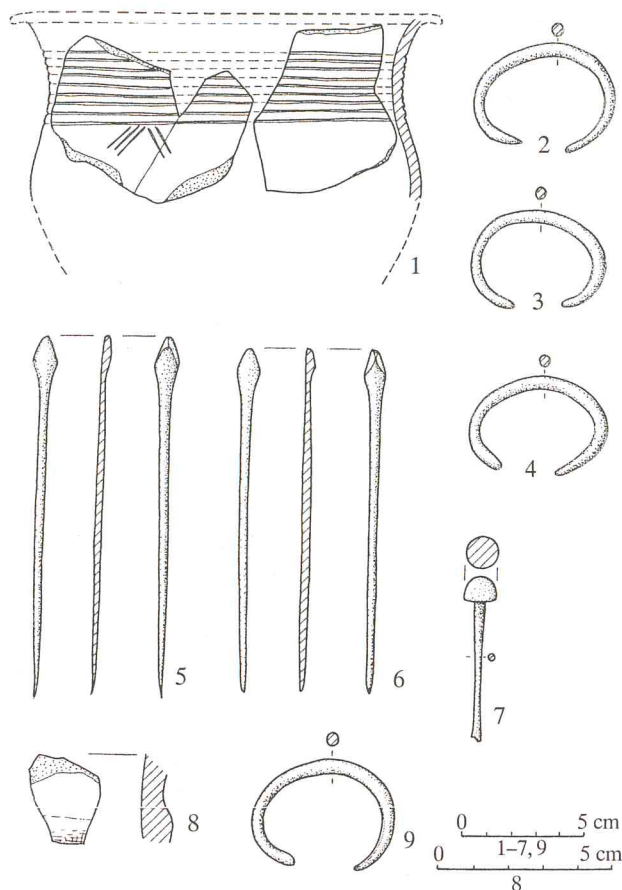


Fig. 5. Srebrnagóra, site 1. Iwno Culture (pottery and bronze artefacts) – after Makarowicz, 1998.

institution of a specific kind of metallurgy producer, created to combine the function of chief, medicine men and blacksmith. Numerous deposits of metal artefacts made of bronze and sometimes of gold (ornaments, weapons, tools), as well as the presence in Iwno graves of such artefacts and of amber objects were usually interpreted as a sign of the emergence of higher forms of ranking (social stratification), leading to the creation of elites (Koško, 1979; Czebreszuk, 1996). Thus, according to the above-mentioned concept, a change took place at that time from “chiefdoms group oriented” to “chiefdoms individualising” (Renferw, 1974). Exceptional individuals are thought to have subjugated entire communities, through control over the access to and distribution of supplies and sources of sustenance. The skill of smelting bronze – as a secret knowledge thanks to which prestigious artefacts could be obtained that strengthened the status of individuals among their fellow tribesmen and, at the same time, legitimised their power – is one of the main arguments of the above-mentioned concept.

In a 1998 publication, I indicated the possibility of an alternative interpretation for the mechanism and

consequences of the spread of metallurgy in the North, and for the appearance of the custom of depositing hoards, particularly among IC communities (Makarowicz, 1998). Subsequent correction and completion of the theses of this initial conception by A. Koško (Koško, 1979; 1988; 1991; compare also its modifications Czebreszuk, 1996) concern the following points: (1) the social structures of Iwno communities (2) the function of exchange in the life of IC communities (3) the influence of metallurgy and of bronze production on the differentiation within individual groups of IC societies (4) the status of blacksmiths and their role in the spread of metallurgy and bronze production (5) the question of hoards in IC and TCC and (6) the issue of the beginnings of local metallurgy in the Early Bronze Age.

1. IC communities were rooted in the northern European world of Late Neolithic groups (BB and

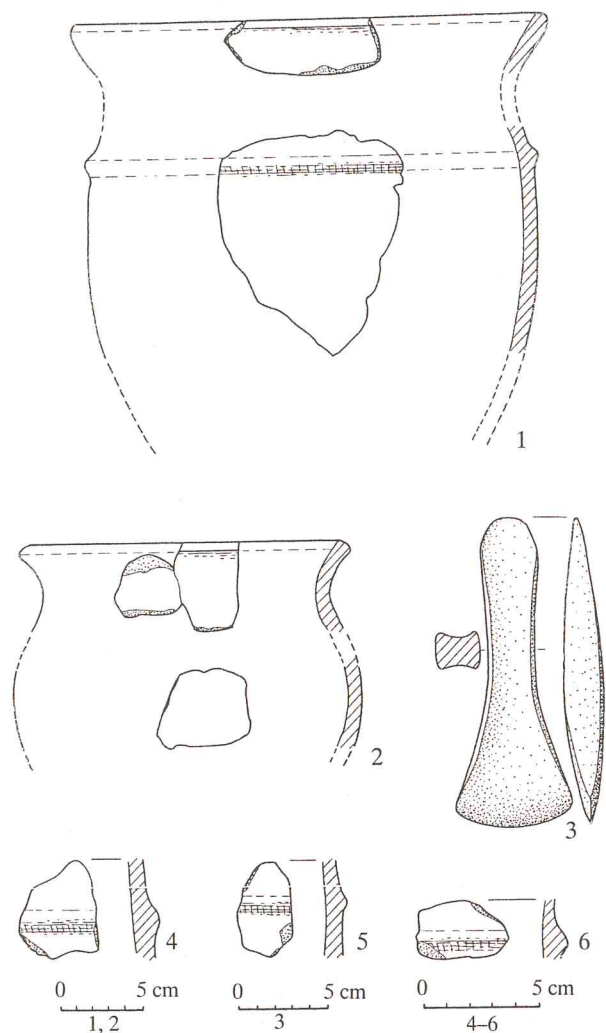


Fig. 6. Bożejewice, site 33. Trzciniec Horizon 1 (bronze axe and selection of pottery) – after Makarowicz, 1998.

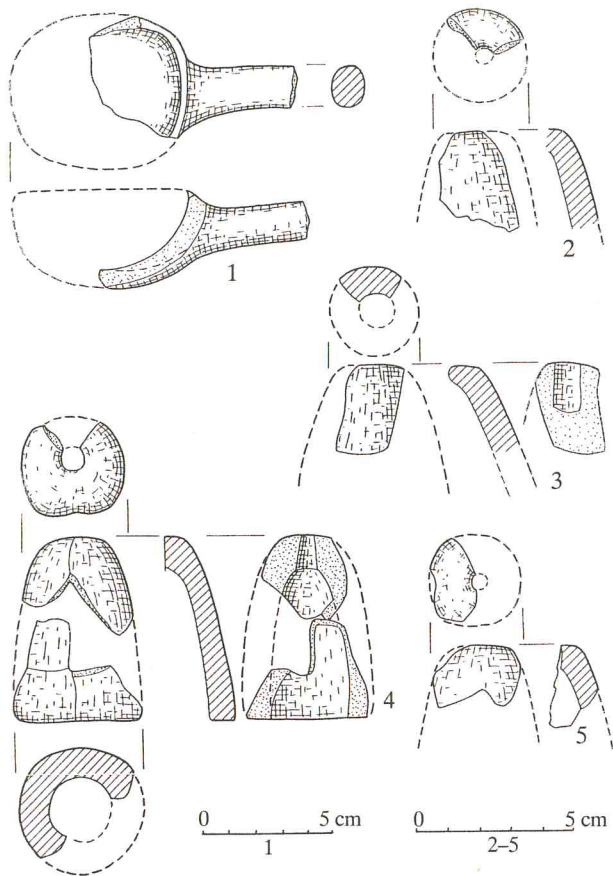


Fig. 7. Rybiny, site 17. Trzciniac Horizon 2 (metalurgical implements) – after Makarowicz, 1998.

SGC). They chiefly comprised relatively mobile herders of cattle and sheep/goat herds (pig-rearing playing a marginal role). The members of these communities could be described as warrior-livestock breeder rather than warrior-knight. The fundamental principle according to which Iwno communities were organised was that of blood ties; the basic social unit being exogamic kinship groups composed of nuclear families. The complete range of rights among such groups, of a corporative nature, was the privilege of adult men, from amongst whom a leader was appointed to stand guard over the customs of the group and its harmonious existence. Together with the territorial differentiations of IC and the creation of TH structures, changes gradually appeared in settlement-economic customs (reduced mobility, the more prominent role of cultivation and hunter-gatherer strategies for obtaining food, against the background of the continuing dominance of livestock rearing), also leading to developmental changes in social structure (localised kinship groups, the greater role of women) (more in Makarowicz, 1998).

2. IC communities supported themselves chiefly from livestock rearing, also employing hunter-gatherer strategies of obtaining food (fishing, hunting and gathering). To a lesser degree, they obtained plant protein from the sowing of cereals and other plants. Thus, the source of sustenance was a multiple-strand economy, with emphasis on the rearing of livestock (more in Makarowicz, 1998). The exchange of goods from the North (e.g. amber, leather, fur, wild animals) and goods from the South (such as bronze, textiles and horses) was at no time the main economic activity of Iwno communities enabling the whole cultural system to function. The trading of goods could have fulfilled a stabilising role in terms of social structure and community life, but not provide the means for its biological subsistence.

3. The thesis of the existence of advanced forms of ranking (stratification) among IC communities stems from the qualification of rich hoards as deposits of individuals standing at the head of the social hierarchy within a group (leaders, medicine men, blacksmiths – most often combining these roles – Koško, 1979), and creating the beginnings of aristocracy (Czebreszuk, 1996). Weaker evidence in support of the concept of

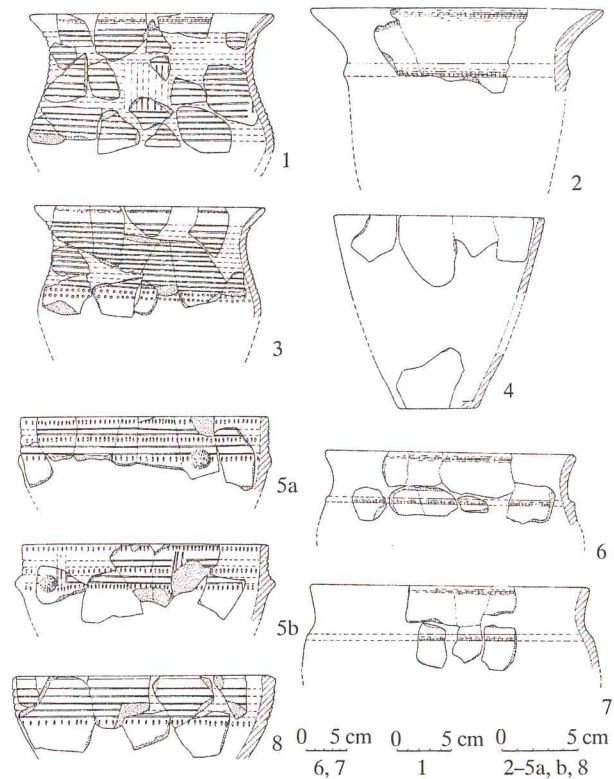


Fig. 8. Rybiny, site 17. Trzciniac Horizon 2 (selection of pottery) – after Makarowicz, 1998.

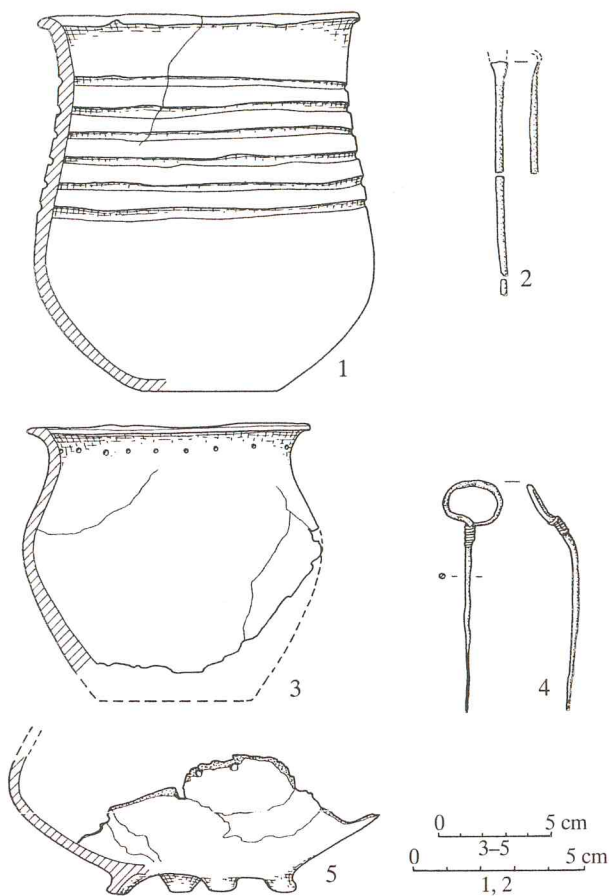


Fig. 9. Pruszcz Gdański, site 10. Trzciniec Horizon 2 (selection of pottery) – after Makarowicz, 1998.

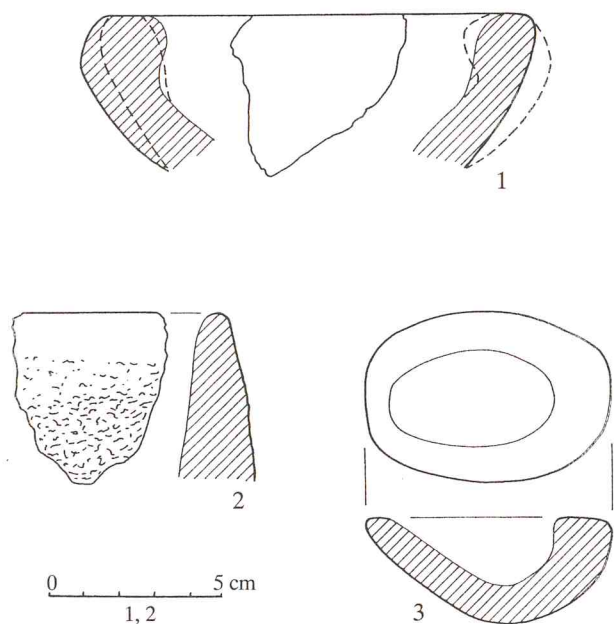


Fig. 10. Goszczewo, site 14. Trzciniec Horizon 4 (metalurgical implements) – after Czebreszuk, 1987; 1996; 1997.

the functioning of the “chiefdom individualising” form of social stratification at the beginning of the 2nd millennium BC is provided by the provisioning of the Iwno graves, relatively modest in comparison with, for example, the ostentatiously rich equipment of the Unetice “princes” graves (*Fürstengraber*) (Sarnowska 1969; 1975; Vandkilde, 1996; Zich, 1996; Makarowicz, 1998).

In the light of recent research, it seems more justified to hypothesise the existence of moderate forms of social ranking among IC communities (Makarowicz, 1998). The familiarity with metallurgy and the influx of metal from the Unetice centres did not cause radical changes in the social structure of this grouping. Nonetheless, some modification was undoubtedly undergone, as a result of the tensions arising from the confrontation of the hitherto collective style of life with the inevitable individualising tendencies – the effects of the influence of the UC circles. This process has already been discussed in literature as a struggle between the new and the old elites (Vandkilde, 1996).

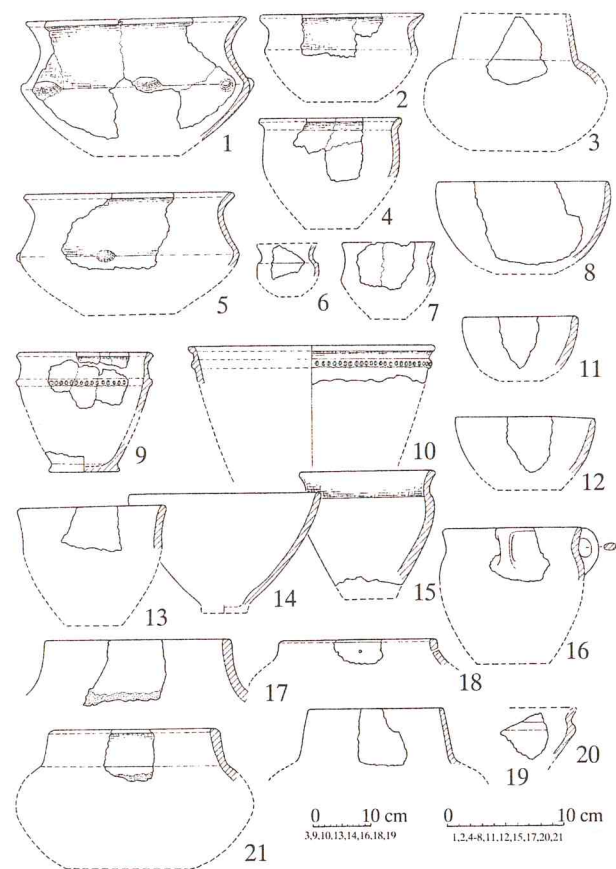


Fig. 11. Goszczewo, site 14. Trzciniec Horizon 4 (selection of pottery) – after Czebreszuk, 1987.

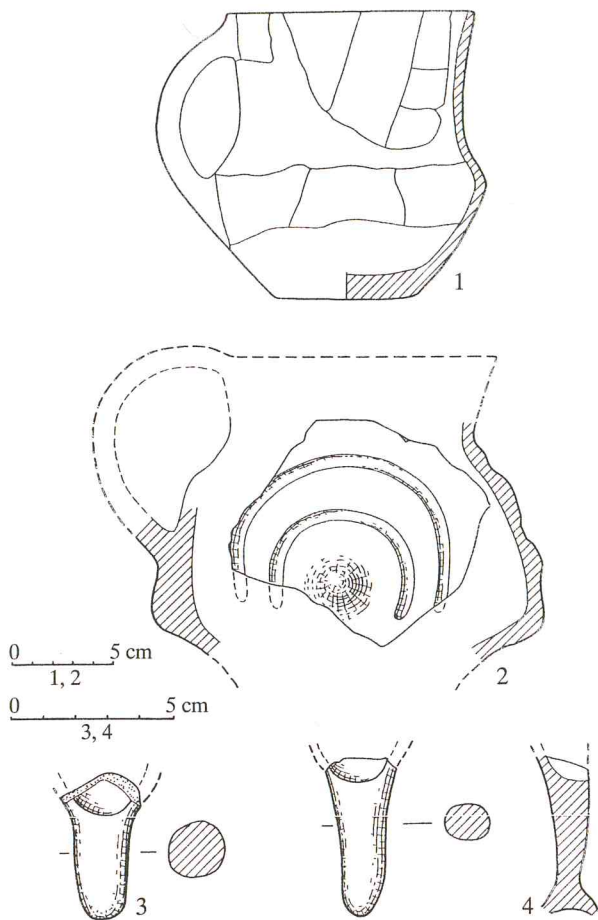


Fig. 12. Babia, site 6. Trzciniac Horizon 4/5 (selection of pottery and metalurgical implements) – after Makarowicz, 1995.

The exchange between the North (IC) and the South (UC) was an undertaking of a more utilitarian and social (prestigious) nature than ideological-religious.

The ties of the quasi-pastoral IC population with the northern BB province (biological – exogamy, and conscious – of common ancestry) formed a sufficient counterbalance to the para-commercial contacts. Therefore, the IC communities did not undergo an “ideological Unetice-isation”, by which I mean a process including such elements as the stratification of Iwno society (Makarowicz, 1998).

4. The position of specialist metal workers-blacksmiths as exceptional, self-sufficient individuals organising bronze smelting centres in the North, is sometimes given excessive prominence (Koško, 1979; Czebreszuk, 1996; 1997). With the support of ethnographical observations and data from the field of comparative religiology (e.g. Eliade, 1993), it can be assumed that they were seldom individuals who travelled freely (“easy blacksmiths”) with all their

belongings, as in the romantic visions of G.V. Childe (Sherratt, 1994,337), E. Sangmeister (Sangmeister, 1972; see also Harrison, 1980) and, to a certain extent, of A. Koško (Koško, 1979). Blacksmiths-metal workers were linked with a particular environment, functioning in a certain socio-economic context. They possessed a workshop in one village, which served as a permanent base from which they penetrated other districts, introducing the skill of metallurgy and covering shortages in metal goods (Vandkilde, 1996,265). They worked for the benefit of the group, and not for particular individuals. Here, the distinction (made earlier in reference to the territory of Denmark) between two types of blacksmith would appear to be instructive: the highly-qualified (creating an elite environment) and the less proficient, providing for local needs (Vandkilde, 1996).

5. One important group of goods exchanged between North and South is that of prestige products, partly introduced from distant regions, and possibly

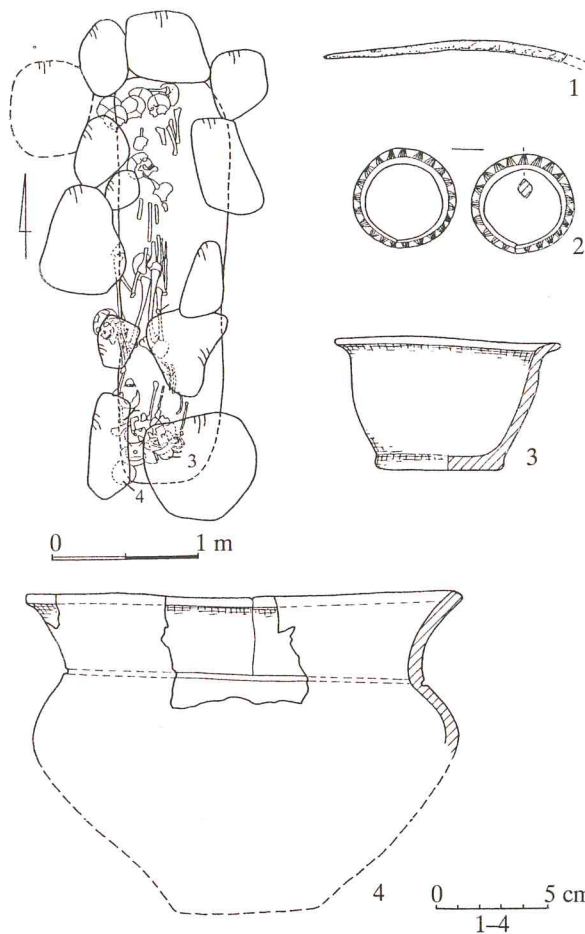


Fig. 13. Gustorzyn. Site 1. Trzciniac Horizon 5 (grave layout, selection of pottery and metalurgical implements) – after Makarowicz, 1998.

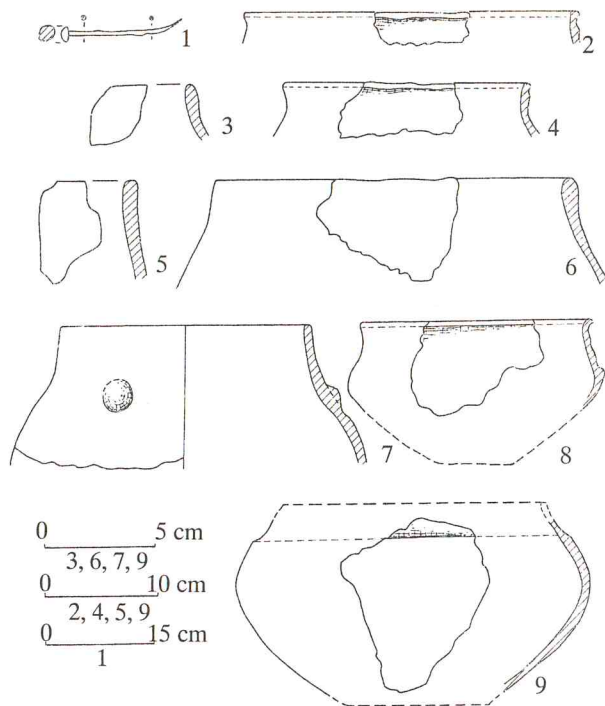


Fig. 14. Dobieszewice, site 2. Trzciniec Horizon 6 (selection of pottery and bronze artefact) – after Czebreszuk, 1987.

also produced locally, in accordance with Unetice standards (of the fashions of the “civilised world”), by resident craftsmen skilled in the reproduction of new styles. Such products generated a form of social ranking and legitimised the then emerging social differentiations (Kadrow, 1995, 94). Above all, however, they raised the significance and prestige of the group, having such numerous exotic goods at their disposal. Paradoxically, this prestige rose with the ostentatious disposal of valuable goods made of bronze, gold, amber etc. (there was competition between groups with relation to sacrificial ceremonies in which the goods were offered as much of such products as possible,

with the aim of displaying the power and wealth of the given group), which resulted in the appearance of numerous collective deposits, presently referred to as hoards (Vandkilde, 1996; Makarowicz, 1998). Therefore, the hoards of Unetice-style artefacts discovered on the territory of the IC ecumene, similarly to the somewhat later hoards of Tumulus origin recorded in the inventory of Trzciniec communities, were the property of the group – the whole community – rather than of a particular individual.

6. In the light of the evidence presented above, the beginnings of Early Bronze Age local metallurgy in the North can safely be dated to 1800–1700 BC, i.e. to the period of the development in this region of TH 2 communities, genetically linked to the Iwno sub-strata. Taking into consideration the earlier, highly intensive interaction between IC and UC populations, earlier attempts at bronze smelting in this region cannot be ruled out. Here, the Unetice influence is unquestionable. What could be the subject of disagreement, on the other hand, is the cultural identity of metal workers. The problem remains the degree to which these identified with a particular cultural group, or operated as a specific kind of cosmopolitan’ community, beyond cultural boundaries.

CONCLUSION

The attempt undertaken in this paper to depict the mechanisms of the adoption of metallurgy on the Polish Lowlands is obviously not exhaustive, bearing in mind the richness of the subject. The evidence presented here strengthens the hypothesis of the local production of bronze in the North from at least BA1b-BA2 period. It appears that an indispensable requirement in terms of research should be the conducting of a modern metallurgical analysis of bronze objects from this area, which could throw new light on the provenance of raw materials and finished products.

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APIE METALURGIJOS RAIDĄ ANKSTYVOJO ŽALVARIO AMŽIAUS VISUOMĖJE

Przemysław Makarowicz

Santrauka

Apie metalurgijos raidą ankstyvojo žalvario amžiaus visuomenėje Lenkijos žemumoje

Šio darbo tikslas yra patvirtinti hipotezę, kad III tūkstantmečio pr. m. e. pabaigoje – II tūkstantmečio pr. m. e. pradžioje Lenkijos žemumos dalyje esančioje tarpupyje tarp Vartos vidurupio, Notetės ir Vislos vidurupio egzistavo vietiniai metalurgijos centrai. Tai buvo laikotarpis, kai šioje teritorijoje gyvavo Protounetičių (PUK), ankstyvosios Unetičių (AUK), Ivno (IK) kultūrų ir Tšineco kultūrinio rato (TKR) bendruomenės.

Straipsnyje pateikiama (1) liudijimai parodantys, kad PUK, IK ir TKR bendruomenės naudojo dirbinius pagamintus iš vario ir bronzos ir (2) liudijimai parodantys, kad aptariamoje Lenkijos žemumos dalyje ankstyvajame žalvario amžiuje funkcionavo vietinė metalurgija.

1. Liudijimai apie metalo naudojimą buvo grindžiami kartu pasitaikiusiais metaliniais ir keramikos radiniais gerai dokumentuotuose paminkluose, priklausančiuose auksčiau paminėtoms kultūroms (lentelė 1, pav. 1–6, 9, 13, 14). Lobių slėpimo fenomenas, siejamas su IK ir TTK bendruomenių apeigomis, tik netiesiogiai liudija, kad minėtos bendruomenės naudojo metalo dirbinius, nes lobiai paprastai neturi keraminio konteksto.

2. Duomenys apie metalo apdirbimą aptariamajame Lenkijos žemumos regione gauti vien tik iš TKR gyvenviečių. Jose rasta a) liejimo tiglių dalių (pav. 10:1–3), b) molinių vamzdelių kalvio dumplėms (pav. 7:2–5) ir c) liejimo šaukštų (pav. 7:1; 12:3, 4).

Ankstyvąją bronzos metalurgiją šiaurėje neabejotinai galima datuoti laikotarpiu tarp 1800–1700 m. pr. m. e., t. y. laikotarpiu, kai šiame regione gyvavo Tšineco kultūros 2 etapo bendruomenės, genetiškai susijusios su Ivno kultūra. Matant aktyvius IK ir AUK gyventojų ryšius, galima daryti prielaidą, kad bandymų lieti bronzą buvo ir anksčiau. Unetičių impulsas abejonių čia nekelia, ginčų objektu gali būti senųjų metalurgų kultūrinė priklausomybė. Lieka neišspręstas klausimas ar metalo apdirbėjus galima sieti su tam tikra kultūrine grupe, ar laikyti atskira savotiška virškultūrine „kosmopolitine“ bendruomene.

Metalo dirbiniai atliko svarbų vaidmenį mainuose tarp Pietų ir Šiaurės. Šie prestižiniai daiktai (bronziniai įrankiai, papuošalai, ginklai) sukūrė visuomenės gradaciją ir įteisino susidariusią visuomeninę diferenciaciją. Ber pirmiausia jie kėlė reikšmę ir prestižą grupės, kuri turėjo daug šių egzotiškų daiktų. Paradoksalu tai, kad grupės prestižas augo demonstratyviai netenkant didelę vertę turinčių daiktų iš bronzos, aukso, gintaro ir kt. (gruپیų lenktyniavimas aukojant dievams kiek įmanoma daugiau tokių daiktų, tuo parodant grupės galią ir turtingumą), kas sąlygojo didelį paslėptų metalinių daiktų kiekį, šiandien vadinamų lobiais. Unetičių stiliaus metaliniai daiktai iš lobių rastų IK eukumenoje, kaip ir vėlesni daiktai iš „pilkapių“ tipo lobių, priklausę vėlyvajai Tšineco kultūrai, greičiausiai priklausė bendruomenei, o ne atkiram individui.

LENTELIŲ SAŖAŠAS

1 lentelė. Metalo dirbinių, randamų kartu su keramika, telkiniai Žemutinėje Lenkijoje (su dokumentuotu kontekstu).

ILIUSTRACIJŲ SAŖAŠAS

1 pav. Smiadrovo Krajenskie, archeologinis paminklas 6: 1, 4 – kapas 44. Ankstyvoji Snetico kultūra (keraminiai indai ir bronzos dirbiniai) – pagal Schäfer, 1987.

2 pav. Smiadrovo Krajenskie, archeologinis paminklas 6: 1–3 – kapas 72; 4–8 – kapas 9a. Ivno kultūra (keraminiai indai ir bronzos dirbiniai) – pagal Schäfer, 1987.

3 pav. Smiadrovo Krajenskie, archeologinis paminklas 6: 1–5 – kapas 75; 6–8 – kapas 33. Ivno kultūra (keraminiai indai ir bronzos dirbiniai) – pagal Schäfer, 1987.

4 pav. Smiadrovo Krajenskie, archeologinis paminklas 6: 1–5 – kapas 40. Ivno kultūra (keraminiai indai ir bronzos dirbiniai) – pagal Schäfer, 1987.

5 pav. Srebrnagura, archeologinis paminklas 1. Ivno kultūra (keraminiai indai ir bronzos dirbiniai) – pagal Makarovič, 1998.

6 pav. Božejevicė, archeologinis paminklas 33. Trzcinec horizontas 1 (bronzinis kirvis ir keraminių indų rinkinys) – pagal Makarovič, 1998.

7 pav. Rybiny, archeologinis paminklas 17. Trzcinec horizontas 2 (metalurgijos priemonės) – pagal Makarovič, 1998.

8 pav. Rybiny, archeologinis paminklas 17. Trzcinec horizontas 2 (keraminių indų rinkinys) – pagal Makarovič, 1998.

9 pav. Prušč Gdanski, archeologinis paminklas 10. Trzcinec horizontas 2 (keraminių indų rinkinys) – pagal Makarovič, 1998.

10 pav. Goščevo, archeologinis paminklas 14. Trzcinec horizontas 4 (metalurgijos priemonės) – pagal Čebrešuk, 1987, 1996, 1997.

11 pav. Goščevo, archeologinis paminklas 14. Trzcinec horizontas 4 (keraminių indų rinkinys) – pagal Čebrešuk, 1987.

12 pav. Babia, archeologinis paminklas 6. Trzcinec horizontas 4/5 (keraminių indų rinkinys ir metalurgijos priemonės) – pagal Makarovič, 1995.

13 pav. Gustožin, archeologinis paminklas 1. Trzcinec horizontas 5 (kapo planas, keraminių indų rinkinys ir metalurgijos priemonės) – pagal Makarovič, 1998.

14 pav. Dobeševicė, archeologinis paminklas 2. Trzcinec horizontas 6 (keraminių indų rinkinys ir bronzos dirbiniai) – pagal Čebrešuk, 1987.

ИЗ ИССЛЕДОВАНИЙ РАЗВИТИЯ МЕТАЛЛУРГИИ РАННЕБРОНЗОВЫХ ОБЩЕСТВ ПОЛЬСКОЙ НИЗИНЫ

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Резюме

Целью настоящей статьи является подтверждение гипотезы о присутствии местных металлургических центров в части Нижней Польши, расположенных внутри междуречья средней Варты, Нотети и средней Вислы в конце III и первой половине II тысячелетия д.н.э. Это был период, когда здесь развивались общины культуры протоунетыцкой (ПУК) и раннеунетыцкой (РУК), культуры ивенской (ИК) и тщинецкий культурный круг (ТКК).

В статье представлены (1) материальные свидетельства употребления общинами ПУК, ИК и ТКК изделий из меди и бронзы, как и (2) свидетельства о функционировании местного металлургического производства ранней эпохи бронзы в анализируемой части Нижней Польши.

1. Замеченные свидетельства в большой степени основаны на совместном существовании металлических артефактов и посудной керамики выше вычисленных культурных единиц в хорошо документированных контекстах обнаруженного (табл. 1, рис. 1–6; 9; 13; 14). Феномен прятования кладов, связанных с обрядом общины ИК и ТКК, может намекать только косвенно на употребление металла вышеупомянутыми культурными общинами, так как изделия из бронзы выступают обычно вне керамических контекстов.

2. Свидетельства функционирования в анализируемой части Нижней Польши местного металлургического производства исходят исключительно из поселений ТКК. В них зарегистрированы (а) фрагменты литьевых тиглей (рис. 10:1–3), (б) фрагменты форсунок для кузнечных мехов (рис. 7:2–5), и (в) литьевые ложки (рис. 7:1; 12:3, 4).

Начало местной раннебронзовой металлургии на Севере можно уверенно датировать как период

между 1800 а 1700 лет д.н.э., что значит во время, когда здесь развивались общины (ТН 2), генетически связанные с субстратом „ивенским“. Смотря на очень интенсивные интеракции между населением ИК и РУК, нельзя исключить более ранних проб литья бронзы в этом районе. Унетыцкая инспирация здесь не подвергается сомнению, но предметом разногласия может быть культурное тождество металлургов. Проблемой, нуждающейся в решении остаётся, насколько они идентифицировались с определенной культурной группой и насколько действовали как своеобразная сверхкультурная „космополитическая“ община.

Металлические изделия являлись важными реkvизитами обмена между Севером и Югом. Эти престижные предметы (бронзовые инструменты, украшения, оружие) сотворили ранкинг, легитимировали возникающую общественную дифференциацию. Но в первую очередь поднимали значение и престиж группы, обладающей столь многочисленными экзотическими ценностями. Парадоксом является то, что тот престиж увеличился через демонстративное лишение имеющих большую стоимость предметов из бронзы, золота, янтаря и др. (совместное соперничество между группами в пределах обрядов жертвования божеству как можно самого большого количества таких изделий с целью демонстрации могущества и богатства данной группы), что плодонило появление многочисленных депозитов металлических изделий, называемых кладами. Клады изделий о унетыцких найдены на территории экумены ИК, наподобие более поздних кладов о „гробовом“ происхождении зарегистрированных в инвентаре позднетщинецких общин так и не являлись собственностью единиц, а группы – всех общин.

СПИСОК ТАБЛИЦ

Таблица 1. Скопления металлических изделий, обнаруживаемых вместе с керамикой в южной Польше (с хорошо документированным контекстом).

СПИСОК ИЛЛЮСТРАЦИЙ

Рис. 1. Смядрово Краенске, археологический памятник 6: 1, 4 – погребение 44. Ранняя Снетичская культура (керамическая посуда и бронзовые изделия) – по Schäfer, 1987.

Рис. 2. Смядрово Краенске, археологический памятник 6: 1–3 – погребение 72; 4–8 – погребение 9а. Ивнинская культура (керамическая посуда и бронзовые изделия) – по Schäfer, 1987.

Рис. 3. Смядрово Краенске, археологический памятник 6: 1–5 – погребение 75; 6–8 – погребение 33. Ивнинская культура (керамическая посуда и бронзовые изделия) – по Schäfer, 1987.

Рис. 4. Смядрово Краенске, археологический памятник 6: 1–5 – погребение 40. Ивнинская культура (керамическая посуда и бронзовые изделия) – по Schäfer, 1987.

Рис. 5. Сребрнагура, археологический памятник 1. Ивнинская культура (керамическая посуда и бронзовые изделия) – по Макарович, 1998.

Рис. 6. Божейевце, археологический памятник 33. Тшцинец горизонт 1 (бронзовый топор и набор керамической посуды) – по Макарович, 1998.

Рис. 7. Рыбины, археологический памятник 17. Тшцинец горизонт 2 (металлургическое оборудование) – по Макарович, 1998.

Рис. 8. Рыбины, археологический памятник 17. Тшцинец горизонт 2 (набор керамической посуды) – по Макарович, 1998.

Рис. 9. Прущ Гданьски, археологический памятник 10. Тшцинец горизонт 2 (набор керамической посуды) – по Макарович, 1998.

Рис. 10. Гошево, археологический памятник 14. Тшцинец горизонт 4 (металлургическое оборудование) – по Чебрешук, 1987, 1996, 1997.

Рис. 11. Гошево, археологический памятник 14. Тшцинец горизонт 4 (набор керамической посуды) – по Чебрешук, 1987.

Рис. 12. Бабиа, археологический памятник 6. Тшцинец горизонт 4/5 (набор керамической посуды и металлургическое оборудование) – по Макарович, 1995.

Рис. 13. Густожин, археологический памятник 14. Тшцинец горизонт 5 (план погребения, набор керамической посуды и металлургическое оборудование) – по Макарович, 1998.

Рис. 14. Добешевиче, археологический памятник 2. Тшцинец горизонт 6 (набор керамической посуды и бронзовые изделия) – по Чебрешук, 1987.