

**‘CORD’ ORNAMENTS ON POTTERY
IN THE VISTULA AND DNIEPER
INTERFLUVIAL REGION:
5TH – 4TH MILL. BC**

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CONTENTS

EDITORS' FOREWORD	5
PART 1. 'CORD' ORNAMENTS ON POTTERY IN THE VISTULA AND DNEPER INTERFLUVIAL REGION: 5TH – 4TH MILL. BC. INTRODUCTION TO RESEARCH ..	7
Aleksander Koško, Marzena Szmyt, 'CORDED' ORNAMENTATION ON CLAY VESSELS IN THE VISTULA AND DNEPER RIVER REGION: 5TH – 4TH MILL. BC. RESEARCH PROJECT AIMS	7
Aleksander Koško, Andrzej Sikorski, Marzena Szmyt, 'CORDED' AND 'CORD-LIKE' ORNAMENTATION IN THE VISTULA AND DNEPER INTERFLUVIAL REGION IN THE 5TH – 4TH MILL. BC. INTRODUCTION TO INTERDISCIPLINARY RESEARCH	13
Andrzej Sikorski, MORE THAN JUST 'CORDS' ON NEOLITHIC CERAMIC WARE: AN OUTLINE OF MICROSCOPIC IDENTIFICATION FOR 'CORDED ORNAMENTATION'. SOME THOUGHTS ON RESEARCH METHODS	49
PART 2. 'CORD' ORNAMENTS ON POTTERY IN THE VISTULA AND DNEPER INTERFLUVIAL REGION: 5TH – 4TH MILL. BC. GENERAL INTERPRETATIONS...	57
Aleksander Koško, Marzena Szmyt, 'CORDED' ORNAMENTATION ON CLAY VESSELS IN THE VISTULA AND DNEPER INTERFLUVIAL REGION: 5TH – 4TH MILL. BC. AN OUTLINE OF HISTORICAL AND CULTURAL CONTEXTS	57
Andrzej Piotr Kowalski, NEOLITHIC POTTERY ORNAMENTED WITH 'CORD' IMPRESSIONS: AN ANTHROPOLOGICAL – SEMIOTIC INTERPRETATION	64
PART 3. 'CORD' ORNAMENTS ON POTTERY IN THE VISTULA AND DNEPER INTERFLUVIAL REGION: 5TH – 4TH MILL. BC. REGIONAL MACROSCOPIC AND MICROSCOPIC RESEARCH	75
Nadezhda S. Kotova, THE FIRST 'CORDED' CERAMICS ORNAMENTATION OF ENEOLITHIC STEPPE AND NEOLITHIC FOREST-STEPPE CULTURES	75
Natalia B. Burdo, Mykhailo Y. Videiko, 'CORD'-ORNAMENTED POTTERY OF THE TRYPILLIA CULTURE. A MACRO ANALYSIS	110
Natalia B. Burdo, Nadezhda S. Kotova, Mykhailo Y. Videiko, TECHNOLOGICAL STUDY OF 'CORD' IMPRESSIONS ON MIDDLE AND LATE ENEOLITHIC POTTERY IN UKRAINE	122

Sławomir Kadrow, Piotr Olejarczyk, 'CORD' ORNAMENTS ON FUNNEL BEAKER CULTURE POTTERY AT TOMINY, SITE 12	135
Aleksander Koško, Marzena Szmyt, 'CORD' AND 'CORD-LIKE' ORNAMENTS ON THE POTTERY OF FUNNEL BEAKER CULTURE SOCIETIES ON THE POLISH LOWLANDS IN THE 4TH MILLENNIUM BC	146
CONCLUSION	153
Aleksander Koško, Marzena Szmyt, 'CORD' ORNAMENTS ON POTTERY IN THE VISTULA AND DNIEPER INTERFLUVIAL REGION: 5TH – 4TH MILL. BC. RESULTS AND IMPLICATIONS	153
References	156
List of Authors	171

Editor's Foreword

The issues outlined in the above volume of *Baltic-Pontic Studies* (BPS) presented here, can be said to generate several important and complex questions among which, one relating to the topogenesis of 'corded' ornamentation on the bio-cultural borderlands of east and west Europe, gave birth to an innovative research project. In this respect, specialist researchers of the Pontic-Baltic Eneolithic (from Middle and Late Neolithic contexts) chose 45 vessels (mostly fragments) originating from the Dnieper-Southern Bug drainage area and Vistula, dated to the 5th - 4th/3rd mill. BC for the purposes of microscopic analyses conducted with the aim of identifying 'corded' patterns of ornamentation. These laboratory tests were led by an archaeologist specialising in microscopic analysis to identify interdisciplinary, pre-historic and archaic techniques in the textile crafts.

The implications of the above tests would seem to warrant a manifold approach to possible conclusions on the basis of specialist (microscopic) criteria of differentiated - previously identified as macroscopic - in general terms as 'corded' motifs of ceramic ware ornamentation (part 1). This also concerns an outline of investigation drawn from hermeneutics, prompted by various contexts such as historical and cultural assessment of bio-cultural communities and related findings as well as attempts to generate a coherent framework of linguistic and cultural research for 'corded ornamentation on ceramic ware' (part 2).

In discussing further the 'main issues' presented in this publication of BPS 15 in respect to the hand manufacture of ceramic ware of the Vistula and Dnieper interfluvial region and its peoples, a *modus operandi* of investigation in the context of region has been proposed whereby researchers of this particular project have been given a free hand, as it were, in respect to the degree and forms of application in microscopic analyses and their findings. A series of commentaries has therefore arisen, from various points of view in so far as reflections on research conducted - possible future strategies for vital questions in this matter that are yet to be answered (part 3).

It is assumed therefore that this volume has in some measure initiated a process of the highest consequence, one introducing a new level of off-site investigation into the genesis of corded ornamentation development, which deserves to be supported in addition through a personal engagement in this research field.

Editorial comment

1. All dates in the B-PS are calibrated [BC; see: Radiocarbon vol. 28, 1986, and the next volumes]. Deviations from this rule will be point out in notes [bc].
2. The names of the archaeological cultures and sites are standarized to the English literature on the subject (e.g. M. Gimbutas, J.P. Mallory). In the case of a new term, the author's original name has been retained.
3. The spelling of names of localities having the rank of administrative centres follows official, state, English language cartographic publications (e.g. *Ukraine, scale 1 : 2 000 000*, Kiev: Mapa LTD, edition of 1996; *Rèspublika BELARUS', REVIEW-TOPOGRAPHIC MAP*, scale 1:1 000 000, Minsk: *BYELORUSSIAN CARTOGRAPHIC AN GEODETIC ENTERPISE*, edition 1993).

Aleksander Koško, Andrzej Sikorski, Marzena Szmyt

‘CORD’ AND ‘CORD-LIKE’ ORNAMENTS ON THE POTTERY OF FUNNEL BEAKER CULTURE SOCIETIES ON THE POLISH LOWLANDS IN THE 4TH MILLENNIUM BC

The present paper discusses the results of microscopic studies of 8 samples of Funnel Beaker culture (FBC) pottery against the background of its taxonomy and origins, and in connection to the cultural background against which ‘cord’ and ‘cord-like’ ornaments appeared.

1. POTTERY WITH ‘CORD’ ORNAMENTS IN THE FBC ON THE POLISH LOWLANDS – AN OUTLINE OF PROBLEMS

FBC pottery on the Polish Lowlands is occasionally ornamented with ‘cord’ impressions, beginning with phase IIIB according to the Cuiavia periodization [Koško 1981:47ff; scale of general absolute chronology following Czebreszuk *et al.* 2000: Fig. 1]. The earliest examples of such ornaments were recorded at sites Radziejów 1 and Opatowice 34 (ca. 3650-3500) [Koško 1981:99ff; 1988]. In phases IIIB and IIIC, ‘cord’ patterns were applied by using a technique that on macroscopic inspection was identified as ‘impressions of a two-strand cord’ (code designation: J-121) [Koško, Szmyt... – part 1, in this volume]. The ornaments became part of a cycle of Wiórek styles [for Wielkopolska component see Koško 1981:49-50; Chachlikowski 1994:165ff] and were also found in Luboń styles.

Beginning with phase IVA (3500/3400- 3200/3100 BC), finds of impressions of the so-called three-strand cord are made (code designation: J-126) [Koško, Szmyt... – part 1, in this volume], the presence of which becomes one of the distinguishing traits of the cycle of Luboń styles [Jażdżewski 1936:250; Koško 1981:50; 1987:53ff]. Interestingly enough, in phases IVA, IVB, VA and VB, a simultaneous use of impressions of both cord types is observed (i.e. two- and

three-strand ones), with sometimes one type replacing the other. The most popular examples of ornaments made with one or the other 'cord' type are shown by M. Rybicka [1995; cf. Koško, Szmyt... – part 1, in this volume: Fig. 1]. 'Cord' patterns seem to disappear in the decline (VC) phase of the Cuiavia FBC [Koško, Łuksza 2007].

The findings hitherto made show that the incidence of the ornament patterns at FBC sites, phases IIIB-VB, varies greatly. Out of all Cuiavia FBC sites published so far, three stand out, owing to a particularly high rate of vessels bearing 'cord and cord-like ornaments' [Koško, Sikorski, Szmyt... – part 1,2, in this volume]. These are FBC settlements on the Cuiavia Plateau. Two of them (Radziejów 1 and 4, Radziejów District) are situated among the so-called Pagóry Radziejowskie (Radziejów Hills), while the third one (Łojewo 4, Inowrocław District) is situated at the northern edge of the Lake Gopło valley, where Lake Szarlej lies today. The percentage of 'cord' patterns is 11,20% (Radziejów 1), ca 50% in pits (Radziejów 4) and 15,59% (Łojewo 4), respectively [Rybicka 1991; 1995, Koško 1984]. All the three settlements have been explored only fragmentarily, making it impossible to assess in any greater detail whether behind the percentages stands any specific site function. This is especially true for site 4 in Łojewo. Therefore, the hypothesis about an exceptionally high share of 'cord' patterns being evidence of the special role of the settlements in the oecumene of the Cuiavia FBC – as places of occasional or 'ritual' acts – seems plausible, but right now it is not possible to either prove it or disprove it.

2. THE TAXONOMIC AND CHRONOLOGICAL POSITION OF THE VESSELS STUDIED

For detailed microscopic analyses [Koško, Sikorski, Szmyt... – part 1, in this volume, Table 1 and 2, Fig. 16-18], pottery from site Łojewo 4 was selected (six samples). This set was supplemented by two vessels, one from site 3 in Opatowice, Radziejów District, and the other from site 1 in Kościelna Jania, Starogard Gdański District. The first of the sites (Opatowice 3) is located, similarly to the Radziejów site mentioned earlier, in Radziejów Hills, while the other (Kościelna Jania 1) lies northeast of Cuiavia, in the Lower Vistula drainage, specifically in the Starogard Lakeland. As in the case of Łojewo 4, the function of both settlements remains rather undetermined. However, a note should be taken of the stylistic uniqueness of a beaker form from Opatowice 3. It may be an argument in favour of considering the beaker a component of inter-settlement occasional or 'ritual' acts [Koško, Sikorski, Szmyt... – part 1, in this volume: Fig. 16:1, Table 2; see Koško 2006: Fig. 9.27, 192].

The vessels subjected to microscopic examinations represent, within the FBC, two units ranking as groups: east (Opatowice 3 and Kościelna Jania 1) and Radziejów (Łojewo 4).

The first of them, i.e. the east group, is predominantly interpreted as an effect of endogenous development with a gradual increase in the share of exogenous components in the 4th and 3rd millennia BC. The latter originated with the cultural circles on the Elbe, in the Carpathian Basin (Danube zone) and in the Black Sea basin [Jażdżewski 1936; Koško 1981; 1988; Rzepecki 2004; Przybył 2009]. The other taxon, i.e. the Radziejów group, arose out of the east group in the middle of the 4th millennium BC under a strong influence of the Baden culture (BC) or badenized FBC groups, especially from the Saale and Elbe interfluvium (and specifically the Salzmünde culture) [Przybył 2009, see there for older literature]. The dating of the vessels is rather uncontroversial. The two vessels linked to the east group (Opatowice 3 and Kościelna Jania 1) must be related to 'Cuiavia' phase IIIC of the FBC. This, in turn, according to a general regional chronology, justifies dating them to 3500-3200/3100 BC. On the other hand, the pottery inventory from Łojewo 4 represents the Radziejów group and, in terms of taxonomy, is one of the key sites for phase VB of the Cuiavia FBC. According to the general regional chronology, this translates into a dating between 3100 BC and 2700 BC, with a possibility of narrowing the interval down to 3100-2900 BC [Przybył 2009: Tab. III.6].

Independently of the typochronological assessments, the Radiocarbon Laboratory of the National Academy of Sciences of Ukraine carried out datings of the ceramic body [Kovaljuch, Skripkin 2007] of:

- (a) a beaker from Opatowice 3,
- (b) pottery accompanying the vessel fragment under investigation from Kościelna Jania 1,
- (c) pottery accompanying samples from Łojewo 4.

a. A ^{14}C measurement, obtained directly for a pottery sample from Opatowice 3 (Ki-14697, 4520 ± 70 BP), corresponds with the general chronological assessment mentioned earlier by fitting into the following time intervals:

- 1 sigma 3360-3260 BC (25.5%), 3250-3100 BC (42.7%)
- 2 sigma 3500-3450 BC (2.7%), 3400-2900 BC (92.7%).

Hence, the most credible dating falls on the last quarter of the 3rd millennium BC.

b. A ^{14}C measurement obtained for the ceramic body from Kościelna Jania 1 (Ki-14698: 2629 ± 90 BP) is definitely too young and must be considered a mistake. **c.** We have three measurements for the ceramic body of pottery items from Łojewo 4 [Przybył 2008:192, Table 2]:

- Ki-12726 4450 ± 90 BP
- Ki-12727 4280 ± 90 BP
- Ki-12728 4320 ± 90 BP.

When they are calibrated in combination, the most credible interval falls on 3020-2900 BC (1 sigma, 68.2%).

Generally speaking, the ^{14}C measurements indicate a rather late chronology of the specimens of FBC ‘corded’ ornaments subjected to a microscopic analysis [Koško, Szmyt... – part 2, in this volume]. From this point of view, their closest chronological counterparts in the examined series would be ‘Tripolye’ ornaments from phase CII [Fig. 10-11, Table 2:21-27, Koško, Sikorski, Szmyt... – part 1, in this volume].

3. ‘CORD’ AND ‘CORD-LIKE’ ORNAMENTS ON FBC POTTERY ON THE POLISH LOWLANDS – MICROSCOPIC ANALYSIS RESULTS

As a result of a macroscopic inspection, on 8 samples of FBC pottery, there were found negatives of both a ‘two-strand cord’ (‘classic’) and a ‘three-strand cord’. A microscopic examination identified mainly impressions of braids and needlework goods, and only in two cases a braided cord was identified. In the following description of the ornaments, dividing them into the pottery of the east group (3.1) and of the Radziejów group (3.2), we shall compare macro- and microscopic assessments and then we shall comment on the latter in terms of textile materials identified, manufacture techniques applied and raw materials used [Table 2:38-45, Koško, Sikorski, Szmyt... – part 1, in this volume].

3.1. ‘CORD’ AND ‘CORD-LIKE’ ORNAMENTS IN THE FBC EAST GROUP (SAMPLES 38 AND 39)

On macroscopic examination it was found that both samples (no. 38 – Opotowice 3; no. 39 – Kościelna Jania) bore horizontal bands of a ‘two-strand cord’, the negatives of which were placed on the inner side of the lip, and – in combination with impressed bars – on its outer side [Fig. 16, Koško, Sikorski, Szmyt... – part 1, in this volume]. Code designations:

- sample 38 – pw xJ-121:3
pz xA-1|xJ-121:2; b /x/ 121[186]|/x/J-121[31]
- sample 39 – pw xJ-121:4,
pz xA-1|xJ-121:3

On microscopic examination, the ‘cord’ negatives turned out to be in most cases impressions of non-woven goods: braids or needlework (re-corded four times). Only in a single pattern was a cord impression identified (braided from 3

dextrorotatory threads). The textiles identified as braids or needlework were made of yarn (in one case of twisted yarn) or spinning material. Interestingly enough, in three cases, bast fibre could have been used as elementary material. The average thickness of fibres was between 0.040 mm and 0.140 mm. Worth noting here is a difference between the pottery from Kościelna Jania 1 (average fibre thickness of 0.040 mm) and the beaker from Opatowice 3, where much thicker threads were identified (from 0.072 mm to 0.140 mm). The measurements argue in favour of the use of non-textile goods made rather of plant fibres than wool (higher hygroscopicity, lower resistance to breaking and rubbing). Hypothetically, this may suggest that raw material was selected at the stage of spinning material/thread preparation. Consequently, if it is assumed that it was bast fibre or other thick fibres that were used, which, being easily moistened (high hygroscopicity), stay durable (when wet they are more resistant to damage), then goods made from them could be used over long periods of time in forming and decorating pottery.

On the vessel from Opatowice 3, only dextrorotatory yarn (Z) was identified; a similar ornament was found on the pottery from Kościelna Jania 1, but in this case it was a 'stronger' twisted yarn, twisted left from two thinner component threads.

The ornaments were applied with a knurling wheel or a roller (which was recorded in 3 cases), and without the use of any instrument (in 2 patterns). Both vessels were smoothed out or slipped (in the cases of some patterns only partially) before and after making impressions (2 patterns) or only after making impressions (2 cases). The vessel from Kościelna Jania 1 was found to have been slipped and polished after applying the ornament. No organic remains were found in the impressions.

3.2. 'CORD' AND 'CORD-LIKE' ORNAMENTS IN THE FBC RADZIEJÓW GROUP (SAMPLES 40 – 45)

On macroscopic examination it was found that six samples of vessels from Łojewo 4 [Fig. 17,18, Koško, Sikorski, Szmyt... – part 1, in this volume] bore horizontal bands of 'two-strand cord' impressions (samples no. 40, 41 and 42) and similar bands of impressions of a 'three-strand cord' (samples no. 41, 42 and 43). In four samples, ornaments were placed on the inner side of the lip; while in two, they were placed next to the lip, on the outer vessel surface. Code designations [see Koško 1984: Tab. 6]:

- sample 40 – pw xJ-121:5|xB-19:5>
- sample 41 – pz xJ-121:3>
- sample 42 – pw xJ-121:4|?B-19>
- sample 43 – pw xJ-126:4|?B?-18:2>

- sample 44 – pw xJ-126:4|xL-171:5
- sample 45 – pz xJ-126:3|xL-161:2

On microscopic inspection it was found that the impressions had been made with braids of spinning material (6 patterns). The spinning material was bast fibre, straw (2 cases) or strips of bark (?) (2 patterns). In two instances, needlework goods (made of quite thick twisted yarn) and a braided cord were identified as well. The latter was made of three twisted strands (Z/2S). The ornaments were applied predominantly with a roller or a knurling wheel, identified in seven patterns, and by the turning method (2 patterns). In most ornament patterns, ‘accompanying treatments’ were carried out after impressing the ornament. The treatments used included burnishing-polishing (2 cases), partial burnishing (one pattern), thorough smoothing out (1), and smoothing over with polishing (1). In two instances, the treatments were applied both before and after making ornaments. No organic remains were found in the impressions.

What puzzles also in this group is the careful smoothing over of specific sections (bands) of impressions of a textile item made earlier and even their successive polishing. After shaping a container, its walls were also smoothed out with (the same?) thick needlework goods and braids. A cord, presumably, was used exclusively as an ornamentation ‘tool’.

4. ‘CORD’ AND ‘CORD-LIKE’ ORNAMENTS ON THE POLISH LOWLANDS: A CULTURAL CONTEXT OF THE INVENTION

Certain hints to take up these issues follow from:

- * ‘technological climate’ at the turn of the 4th millennium BC within the FBC, well manifesting itself, for instance, in the development of spinning and weaving (?) [Koško, Szmyt 2007; Chmielewski 2009; Chmielewski, Gardyński 2009; see there for older literature] and
- * prevalence of evidence of non-animal elementary materials of which goods, used in decorating vessels, were made.

The second of the above listed arguments should at the same time be weakened because of analytical difficulties in identifying textile raw materials of animal (wool) or vegetable origin. This discrepancy may, however, have some significance for the assessment of the cultural context of the invention, namely, the assessment of the genetic background. A case in point here is the use of spinning material-yarn for making non-textile goods (loom-less) – an idea ‘originally characteristic’ of forest societies. This, however, may concern both local societies, even Palaeolithic ones, and exogenous ones that migrated from the borderland between east European forest-steppe and the taiga [see the concept of the Mątwy

cultural component: Koško 1981; 1988]. It must be observed, however, that the identified cord forms clearly represent forms of ‘strings’ and not ‘quasi-ropes’, which limits their strength as a possible piece of evidence in support of concepts arguing in favour of steppe origins (in the sense of links to the economic achievements of ‘pre-Yamnaya’ breeder societies).

Another question concerning the genetic background of the ‘invention’ touches upon a broader issue of the very function of ‘cord’ and ‘cord-like’ ornaments. There are two possible general explanations of their use on ceramic containers. The first one is purely pragmatic: they are traces of lacing up or protecting containers or even repairing them. The FBC pottery from the Polish Lowlands abounds in traces of hypothetical repairs [e.g. secondarily made holes or traces of tar binders; for more details see Pietrzak 2010]. The other explanation – ever more plausible owing to the results of microscopic examinations presented in this volume – draws attention to the treatment of ‘vessel dressing’. The treatment could have had two functions: a symbolic one [see the ideosemantic concept as presented by Kowalski 1998:27ff] or a symbolic-pragmatic one, providing the vessel with an additional function of an insulated container (thermos).

CONCLUSION

The inventory of ‘cord’ and ‘cord-like’ ornaments, subjected to specialist analyses, on the vessels of FBC east and Radziejów groups is of limited significance for the study of the position of their societies in the geographical origins of the invention of the ornaments. A side effect, but a highly informative one, of the study is an outline of a broader project, concerning a local development line of the Neolithic weaving industry [Koško, Sikorski, Szmyt. . . – part 1, in this volume]. There are two great advantages of studying pottery styles as a source foundation of such a project: their mass character and a possibility of time ordering. Such a project could thus be called: an introduction to the study of the weaving of the second half of the 4th millennium BC in the great valley zone of the Polish Lowlands. Perhaps, once the project is under way, the question of the geographic origin of the redefined ‘cord’ ornaments will find its new place in research.

Translated by Piotr T. Żebrowski

ABBREVIATIONS

- AP URSS – Arkheologichni pamiatky Ukrainskoyi Radianskoyi Sotsialisticheskoi Respubliki. Kiev.
- BPS – Baltic-Pontic Studies. Poznań.
- KSIA – Kratkiye Soobshcheniya Instituta Arkheologii. Moskva.
- KSIA AN USSR – Kratkiye Soobshcheniya Instituta Arkheologii Akademiyi Nauk Ukrainskoy Sovetskoy Sotsialisticheskoy Respubliki. Kiev.
- MIA – Materialy i Issledovaniya po Arkheologii USSR. Moskva. Leningrad.
- SA – Sovetskaya Arkheologiya. Moskva.

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