

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

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BALTIC-PONTIC STUDIES

V O L U M E 15 • 2010

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INSTITUTE OF PREHISTORY
Poznań 2010
ISBN 83-86094-14-1
ISSN 1231-0344

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Cover Design: Eugeniusz Skorwider

Linguistic consultation: Ryszard J. Reisner, Piotr T. Żebrowski

Printed in Poland

Computer typeset by PSO Sp. z o.o. w Poznaniu

Druk i oprawa: Zakłady Poligraficzne TMDRUK w Poznaniu

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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).

Natalia B. Burdo, Nadezhda S. Kotova, Mykhailo Y. Videiko

TECHNOLOGICAL STUDY OF ‘CORD’ IMPRESSIONS ON MIDDLE AND LATE ENEOLITHIC POTTERY IN UKRAINE¹

Ceramics with ‘corded ornamentation’ became widespread in multiple cultural complexes on the territory of Ukraine in the 5th and 3rd mill. BC [Fig. 1, 5, Kotova... , in this volume; Fig. 1, Burdo, Videiko... , in this volume]. This research programme alone covered eight cultural complexes: from the Trypillia and the Sredniy Stog to the Yamnaya communities. However, there had been others as well, which among others, determines the relevance of this study.

1. PONTIC BEGINNINGS OF ‘CORDED ORNAMENTATION’ – THE TRADITIONAL VIEW AS PER D. TELEGIN

The issue of the emergence and dissemination of corded ornamentation on the territory of Ukraine was studied and described in great detail by D. Telegin, when he outlined the characteristics of the Sredniy Stog culture (SSC) [Telegin 1973:154-158]. The scholar pointed out that corded vessels had emerged in the Sredniy Stog culture in the course of the transition from the early stage (Voloshske) to the later stage (Dereivka). It is noteworthy that the first patterns to emerge in the early period had been short imprints of coiled cord, the so-called ‘gusenichka’ (‘caterpillar’).

This kind of ornamentation, according to D. Telegin, had been disseminated under the Sredniy Stog influence among the BII Trypillia culture (TC) populations in Volodymyrivka-type monuments in the Syniukha River basin, and then further on. This view was also shared by T. Movsha [Movsha 1970].

¹ In this article the original version of town names etc. have been retained as per the author’s wishes.




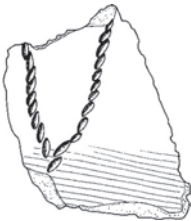
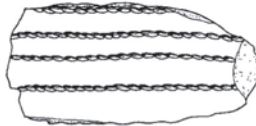
Sample no.	Taxonomic identification	Site	Archaeological descriptions	Microscope analysis	Figure
1	SSC phase II	Dereivka	cord + sickle impressions	plaiting + macrame	
			шнур + серпика		
2	SSC phase II	Dereivka	short cord impressions	sprang (netting) + fringer	
			короткие отиски шнура		
3	SSC phase II	Dereivka	thin cord impressions	needlework?	
			тонкие отиски шнура		
4	SSC phase II	Dereivka	cord	needlework + plaited cord	
			шнур		
5	SSC phase II	Dereivka	cord	needlework? + turned cord	
			шнур		

Fig. 1. Comparison of archaeological descriptions of ceramic wear with associated laboratory research results of textile impressions made on ceramics of cultures in the 4th to the beginning of the 3rd mill. BC in Ukraine



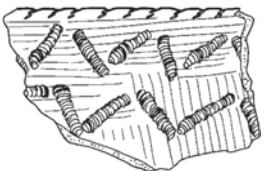
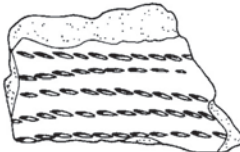


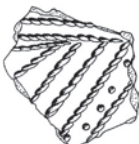
Sample no.	Taxonomic identification	Site	Archaeological descriptions	Microscope analysis	Figure
6	LMC	Mykhailivka	cord	plaiting	
			шнур		
7	LMC	Mykhailivka	cord	sprang-like thick netting + sprang-like simple netting	
			шнур		
8	RC phase 1	Mykhailivka	twine cord	finger twine cord	
			перевитый шнур		
9	RC phase 2	Mykhailivka	cord	needlework	
			шнур		
10	RC phase 2	Mykhailivka	twine cord	plaiting (basket?)	
			перевитый шнур		
11	RC phase 2	Mikhailovka	cord + sickle impressions	needlework? plaited cord + knots	
			шнур + серпички		
12	YC	Mykhailivka	cord	plaiting cord with knots made out of cord	
			шнур		

Fig. 1. cont.

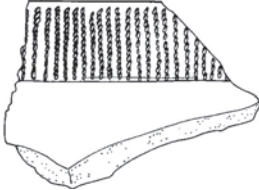
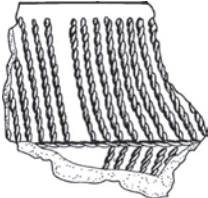

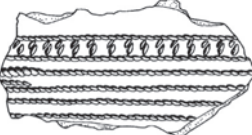
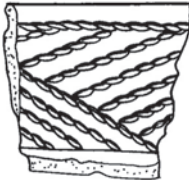
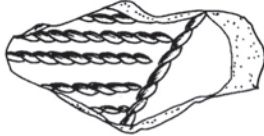
Sample no.	Taxonomic identification	Site	Archaeological descriptions	Microscope analysis	Figure
13	YC	Mykhailivka	cord	plaiting	
			шнур		
14	YC	Mykhailivka	cord	needlework	
			шнур		
15	YC	Mykhailivka	twine cord	plaiting (basket)	
			перевитый шнур		
16	YC	Mikhailovka	cord + twine cord	elaborate sprang (netting)	
			шнур + перевитый шнур		
17	YC-early	Khortitsa	cord	plaiting	
			шнур		
18	YC-early	Khortitsa	cord	needlework + needlework or plaiting	
			шнур		

Fig. 1. cont.


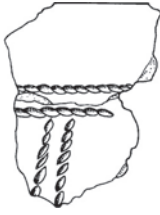



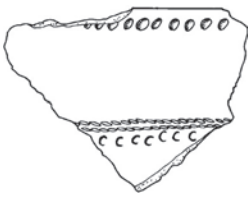
Sample no.	Taxonomic identification	Site	Archaeological descriptions	Microscope analysis	Figure
19	TC stage CI	Ihnatenkova Hora	short cord impressions	turned cord	
			короткие оттиски шнура		
20	TC stage CI	Ihnatenkova Hora	cord	needlework or plaiting	
			шнур		
21	TC stage CII	Sandraki	cord	plaiting?, needlework	
			шнур		
22	TC stage CII	Trojaniv	cord	turned cord	
			шнур		
23	TC stage CII	Trojaniv	cord	plaited cord + plaiting or needlework?	
			шнур		
24	Usatovo Culture (TC stage CII)	Mayaki	cord + sickle impressions	netting	
			шнур + серпики		

Fig. 1. cont.

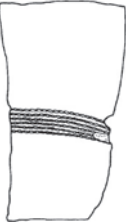
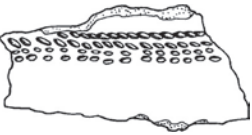

Sample no.	Taxonomic identification	Site	Archaeological descriptions	Microscope analysis	Figure
25	Usatovo Culture (TC stage CII)	Mayaki	cord	plaiting	
			шнур		
26	Usatovo Culture (TC stage CII)	Mayaki	cord	netting	
			шнур		
27	Usatovo Culture (TC stage CII)	Mayaki	cord	netting	
			шнур		

Fig. 1. cont.

It should be noted that BII Trypillia ceramics displayed not only ‘caterpillar’ impressions, but also cord ones, which are particularly common on Chapaiivka-type monuments in the Dnieper area, where they are also connected to the ‘steppe influence’ [Kruts 1977]. However, judging by the finds of painted ceramics, those Trypillia monuments have been synchronous for a long time with those of the Nebelivka-type in the Southern Bug area, where they had replaced the Volodymyrivka-type monuments.

It is also noteworthy that the Nebelivka group featured only ‘caterpillar’ patterns but not cord ornamentation. Since V. Kruts once considered the Chapaiivka monuments to represent a transition to the CII stage, their ‘aging’ to the BII stage generally challenges his conclusions about the ‘steppe influences’ and gives cause to consider the origin of cord emergence in Trypillia complexes.

Furthermore, D. Telegin also noted that corded ceramics had emerged later in the Don and Volga areas and the Northern Caucasus than in the Dnieper area, and referred to the SSC people as the creators of that kind of ornamentation.

















Archeological descriptions	SSC phase II	LMC	RC phase I	RC phase II	early YC	YC	TC stage CI	TC stage CII	UC
Cord+stickle impressions									
Short cord impressions									
Thin cord impressions									
Cord impressions									
Twine cord impressions									
Cord+twine cord impressions									

Fig. 2. Distribution of plaiting varieties in Eneolithic and Early Bronze Age archaeological cultures on the territory of Ukraine in accordance with visual definitions

2. DIFFICULTIES IN ARCHAEOLOGICAL IDENTIFICATION OF 'CORDED' ORNAMENTATION

It should be noted that the descriptive terminology applied by archaeologists to 'corded ornamentation' included in general about six entries (Fig. 1). Meanwhile, comparison of samples of ceramics from various cultures, which are described with the use of identical terms, shows that in some cases they describe different imprints. An example are the distinctions in the 'cord + sickles' entry in Fig. 2; this is not the only case when it is impossible in principle to compare the descriptions of the finds without illustrations. The same argument should be related to 'cord', the most common term in descriptions of ceramics of various cultural types.

It has been the formal comparison of the presence of certain kinds of combinations of types of 'corded ornamentation' in specific cultural complexes that has allowed individual researchers both to make their judgements about priorities in 'inventing' a specific kind of embellishment and determine the directions of its 'dissemination', as well as cultural and even ethnic processes. At a glance, such comparisons and the conclusions based on them appear convincing enough, even though individual issues were deemed debatable.

Indeed, the presence of various versions of 'corded ornamentation' in all nine cultural complexes, the materials of which had been provided for laboratory studies, initially seemed to give good reasons for such conclusions. For instance, based on the descriptive terminology, the plain 'cord' was present in all nine complexes, the 'twisted cord' and the 'cord with sickles' appeared in at least three of them. The latter's presence in the SSC, dated back to an earlier time than the Usatovo (UC) and the Rogachyk (RC) cultures, making it possible to assume that the older monuments had been the source of that particular kind of 'corded ornamentation'. Such conclusions, seemingly flawless from the perspective of purely archaeological methodology, proved to be not so obvious in the light of the undertaken archaeometric tests.

The research project of the most ancient corded ornamentation involved the study of ceramic samples from the 'steppe' cultures and the TC, dating back to ca. 5th mill. – the first half of 4th mill. BC. It should be noted that some of the dates were obtained directly from fragments of ceramics from the same settlements that gave samples for the study of textile impressions. When studied under microscope, the cord ornaments proved to be of many more various patterns: the balance was about 6:14, while the total number of samples was limited to 27. The correlation of archaeological descriptive terms and laboratory analyses results is presented in Fig. 2; the occurrence of various textile imprints in different cultural complexes can be seen in Fig. 3.

Results of microscopic analysis	SSC phase II	LMC	RC phase 1	RC phase 2	YC-early	YC	TC stage CI	TC stage CII	UC
1. Turned cord							+	+	
2. Plaited cord	+								
3. Plaited cord+knots				+				+	
4. Finger twine cord (wound)			+						
5. Plaiting	+	+		+	+		+	+	+
6. Plaiting (basket?)				+		+			
7. Plaiting with knots?						+			
8. Plaiting - ornamental ribbon (inkle?)						+			
9. Macramé?	+								
10. Netting									+
11. Sprang (netting)? + fringes						+			
12. Elaborate netting - similar to elaborate sprang		+							
13. Needlework/needle stitching?	+			+	+	+	+	+	

Fig. 3. Plaited textile types in archaeological cultures of the Eneolithic and the Early Bronze Age in Ukraine (laboratory results)

3. 'CORDED WARE' ORNAMENTATION INTERDISCIPLINARY RESEARCH PROGRAMME

The laboratory test results enabled the conclusion to be drawn that the steppe populations – Dereivka (DC) and Yamnaya (YC) cultures at their early and late stages and the monuments of the Lower Mykhailivka type – had used stamps (matrices) that had differed from those used by the TC population. Hence, judging by five samples taken for analysis from the Dereivka settlement collection, the Middle Eneolithic DC ceramics had been ornamented with the use of plaiting and turned cord. Only one fragment was ornamented with a woven pattern and macramé netting. Quite possibly that kind of ornamentation emerged as a result of the TC influence that can be also traced in the zoomorphous and anthropomorphous plastic modeling works found in that settlement [see Kotova. . . , in this volume].

The lower layer of the Mykhailivka settlement, synchronous to that of Dereivka, contained objects ornamented with the use of woven patterns, grid and composite cord, as well as twisted cord. The middle layer had been left by the population of the Late Eneolithic RC, which continued the traditions of its predecessor steppe population, using similar types of cord impressions such as needle patterns, woven baskets, interlacing and knots, for decorating its vessels. Finally, the upper layer of the Mykhailivka and Generalka Khortitsa settlement had been left by the Early Bronze YC population, which used a variety of corded ornamentation, including woven patterns, interlacing with knots, needlework, woven baskets, and grid stamps.

The plaiting impressions and needlework proved to be the most common and are present in the complexes of seven and five cultures, respectively (taking into account their chronological stages). The most ancient monuments featuring the plaiting entry belong to SSC and TC, for which archaeologists have traditionally registered a large number of contacts, based on research data of ceramic complexes. However, the issue of priority remains open, since earlier materials have not been studied for the TC and for its neighbour culture complexes.

Regretfully, cord-ornamented vessels from TC BII monuments, synchronous to the DC, were not available for analysis. The available materials allow an assumption that the differences in corded ornamentation of the TC and 'steppe' monuments result from independent development of that ornamental tradition. Possibly, after having emerged in some centre (either the 'Trypillia' or the 'steppe'), the 'corded ornamentation' had been borrowed by the neighbouring population that subsequently used its own ways of making the imprints.

Hence, the study of the samples generally demonstrates a certain continuity of techniques in making 'corded ornamentation' by the steppe population throughout the Middle and Late Eneolith, as well as the Early Bronze Age. Moreover,

archaeological materials of the Steppe Eneolithic clearly demonstrate a genetic connection between the steppe cultures. In this context, the continuity of types of ‘corded ornamentation’ appears to be understandable. On the other hand, they demonstrate a disconnection, particularly between the ‘steppe’ and ‘Trypillia’ populations, including the UC.

4. RESEARCH POSSIBILITIES IN TECHNOLOGY OF NON-WOVEN TECHNIQUES APPLIED IN ‘CORDED WARE ORNAMENTATION’

The use of the findings of this study opens up prospects for research into ancient techniques of making ‘corded ornaments’ to be precise, non-woven textile crafts (see Fig. 3) [Koško, Sikorski, Szmyt... – part 1, in this volume, Fig. 19] which proved to be more varied within individual culture complexes than had been believed before (Fig. 1). Possibly, accumulation of research materials will make it possible to trace the history of the emergence and proliferation of individual techniques in this context.

Importantly, research shows the widest variety of textiles for one culture complex does not exceed four or five; the record number of five was reported for the YC, represented by samples for the Mykhailivka settlement. It is possible, though, this figure also depends on the number of studied samples.

Interesting insights may be offered by research into the issue of influence in respect to the ‘textile’ decoration technique on shaping the morphology of ceramic objects; for the ‘natural selection’ of vessels that are the best-shaped for covering them with textile imprints, typical for the community in question, appears to be inevitable. However, equally interesting is the prospect of studying the possibility of the reverse influence. Obviously, both the number and variety of samples available for laboratory testing are important for the validity and accuracy of the proposed research.

Another area of interest for future archaeological study is the origin of the ‘corded’ ornament idea, including its connection with the so-called ‘comb’, widespread already in the Neolithic period. Such research will require not only studying the most ancient samples, but undertaking certain experimental work. Yet, the latter may prove relevant for studying a wide range of issues connected to that type of embellishment.

Another important aspect of research in this context is the study of connections between corded ornamentation schemes and other pre-textile objects, methods of their finishing, including flower-patterned fabrics (the latter being woven as well as, probably, stamped. A separate question, in a way connected to issues of textile techniques, is research into the sacral aspect of textile ornaments,

for this kind of activity was adequately reflected in ancient populations' sacral and magical practices [see Kowalski... , in this volume].

5. CONCLUSIONS

Summing up the above, it should be noted that a fuller, more complex and systematic study of samples taken from a large number of monuments of various archaeological cultures from the territory of Ukraine is advisable in the future. Given that the total number of the 'steppe' settlement monuments with relevant ceramics is relatively small and does not exceed 16 sites (including, for 5th mill. BC: 4 SSC, 3 DC, 1 Lower Mykhailivka type; 8 settlements; for 4th mill. BC: 2 Pit-and-Comb Culture, 2 RC, 4 YC; 8 settlements), this kind of undertaking would appear to be quite realistic. Possibly, more effort will have to be dedicated to studying materials from YC and Catacomb graves, as well as monuments of the Corded Ware cultures.

The materials of the TC and UC, cultures that had had a rather highly developed textile production for over 2000 years, can be said to be more prolific in numbers and variety and its earliest traces are linked to the spindle whorls found in the monuments of the latter half of 6th-5th mill. BC. One example of such 'manufacture' is a bone crochet hook, decorated with a bird figurine, found in the Polyvaniv Yar settlement (BI horizon). The impressions on ceramics allow identification of a plain double-sided cloth knit with needles, and two types of knitting with a crochet hook, single crochet stitches and double crochet stitches [Burdo 2004a]

For 4th mill. BC, in addition to spindle whorls, there have been multiple finds of vertical looms (ceramic loom weights), starting from the BII stage. At the same time, imprints of woven and knit fabrics appear on ceramics, plastic modeling works, as well as drawings of bi-triangular figures on ceramics in clothes, scratching of clothes details on anthropomorphous plastic objects [Burdo 2004b; Novitskaya 1960; Kosakivskiy 1998; 2001; Kosakivskiy *et al.* 1998].

The finds of yarn and threads are rare in the TC; they have been known in the settlements of Polyvaniv Yar (stage BI) and Maidanetske, Stina IV (stage CI). A fine thread of yarn from Polyvaniv Yar had been made in the plain twisting technique with 14 twists in each cm. The yarn for threads from Stina IV had been made of two Z-twisted 0.9-1.2 mm threads [Passek 1951:54-57; Burdo 2004c:437]. Prolific whorls from late Trypillia settlements, including those decorated with pictograms and magic ornaments, indicate a special attitude to the process of thread- and yarn-making.

Summing up this overview, it should be noted that in the case of the TC the objects of study were primarily the imprints of fabrics and remains of looms, but not the items as such (woven or knit), the impressions of which were identified with the use of laboratory methods within the implementation of this research programme.

In our view, the most productive approach is the study of the entire corpus of materials, at least within regions/cultures; the development of specialized research programmes with the use of available laboratory research methodologies for textile products based on their impressions on ceramic objects.

For descriptions of finds, it appears more appropriate to use primarily the data and terminology that is common for laboratory testing, rather than the traditional terminology that was in use before by archaeologists. This traditional terminology would appear to be insufficiently accurate and, as shown by the studies undertaken within this programme, omits many important details.

Translated by Inna Pidluska

ABBREVIATIONS

- AP URSS – Arkheologiczni 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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Funds supplied by the Ministry of Science and Higher Education (grant No. N10901431/0900) and the Poznań Prehistoric Society have been used.

ISBN 83-86094-14-1

ISSN 1231-0344