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Typology and Chronology of Wheel-shaped Ceramics from the 10th to 13th Centuries (Based on the Data of Lithuanian Archaeological Monument Research)

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1. INTRODUCTION

The problem and relevance of the research. Archaeological pottery is a very important source of scientific information. It provides complex data to investigate cultural, economic, social and other processes. When aimed at revealing socio-economical, cultural and other processes based on the investigation of ceramics, some of the very first steps are the classification and chronology.

In the period of concern, several traditions of making ceramic vessels collide. At the beginning of the 2nd millennium AD, the tradition of hand-made pottery continues. However, along with the influence of neighbouring countries, vessels made in the Slavic or Slavic-alike tradition spread. They are characterized by the use of potter's wheel in the process of shaping and decorating as well as by some particular style of morphological and ornamental features. This wheel-shaped pottery and its imitations belonging to a rather late period was very little known in Lithuanian archaeology.

The fundamental works about the early wheel-shaped pottery characteristics and its spread were published by I. Sadauskaitė-Mulevičienė in the '60s and '70s (Sadauskaitė-Mulevičienė 1965, Mulevičienė 1970, Mulevičienė 1971a, Mulevičienė 1971b). A bit later, a more detailed papers were prepared to analyse the classification of the early 2nd millenium AD pottery of some particular territories and places in Lithuania: the Eastern Lithuania territory (Vengalis 2008), the Lithuanian seacoast settlements (Žulkus ir Klimka 1989, Žulkus 1997, Žulkus 2007) and cemeteries (Bliujienė 2005), the hillforts of the Trans-Nemunas region (Baltramiejūnaitė 2018), and the Mažuloniai hillfort (Baltramiejūnaitė 2011). Despite the great significance of their contribution to the studies of the pottery types and character in the separate territorial units in the period of concern, the picture of the Lithuanian wheel-shaped ceramics spread (in the sense of time and space), remained unclear.

Up until now, the misunderstanding and unclarity in the literature describing the development of pottery and the socio-cultural and economic interfaces were caused by undefined or disputable borders between the territories of West and East Slavs influence (e.g. Bertašius 2002, 209, Žulkus ir Jarockis 2013, 94-111). Also, the lack of the chronological classification of these ceramic vessels was well regarded as a significant problem concerning the pottery development in Lithuania and the Lithuanian State establishment process in general (Zabiela 1995, 140, Žulkus ir Jarockis 2013, 94, Vengalis, Volungevičius, et al. 2020, 211, etc.).

The dissertation research object is the wheel-shaped ceramics and its imitations of the 10th-13th c. AD found in archaeological sites of Lithuania. This pottery, which was made of a specific technology and/or of a particular style, falls into a group of widely used ceramics in Europe, which is related to the spread of the Slavic tradition of vessel making in the territories inhabited by the Slavs, as well as in the neighbouring areas. Thus, in historiography, it corresponds to the ceramics-making tradition known as Slavic-Baltic (Slavic, Slavonic pottery; Baltic ware, Ostseeware).

Chronological coverage of the dissertation research object is from the 10th to 13th centuries AD. The earliest point was defined based on the timing of the wheel-shaped ceramics spread into the Lithuanian territory according to the recent published data. Whereas, the latest dating was determined by practical factors. Firstly, at the time of concern – the second half of the 13th century AD – significant geopolitical circumstances have led to the abandonment or transformation of certain areas and also caused some turning moments that allow us to determine the exact dating of the archaeological objects chosen for this study. Secondly, in the 14th century AD towns were developing, thus, we have a plethora of collections of ceramic finds that represent significant changes in the quantity and quality of the wheel-shaped pottery – the synthesis of this data deserves a separate investigation.

Geographical coverage of the research matches current Lithuanian territory border, that is, from a retrospective, an artificial category. However, the main reasons for this option were the comprehensive availability and cognition of sources. The lands of Scalovia and Lamata in the southwestern part of Lithuania were excluded from the research area due to general lack of data.

It has to be noted, that the chosen territory of the research does not discern the material of concern from the interregional processes. Lithuanian pottery collections were analyzed in the wider context of the pottery tendencies of the neighbouring countries. For this purpose, the published data along with the material from the National Museum of Lithuania, the Latvian Museum of National History and the State Archaeological Museum in Warsaw were taken into account.

The main aim of the study was to prepare the space- and chronology-based systems of wheel-shaped pottery typology, and, on its basis, to evaluate the development of this type of pottery in Lithuania in the context of the wheel-shaped ceramics spread in the neighbouring territories in the 10th-13th centuries AD.

The chosen investigation steps to achieve the main aim were as follows:

1. The evaluation of the major aspects of the Slavic wheel-shaped pottery tradition spread based on the fundamental investigations already done in the wider region. Significant importance was put on the archaeological sites that could be geographically, economically or socio-culturally associated with the Baltic tribes that lived in Lithuania.

2. The selection of the pottery collections that correspond with the chronological period of focus; the evaluation of their relevance and dating.

3. The general analysis of the technological, morphological and decorating characteristics of the wheel-shaped ceramics from the selected collections. Presentation of their changes observed in terms of time and space.

4. The drawing up of the territory- and chronology-based systems of typology (distinction of the separate typological units and sequences). The evaluation and dating of the spread of the distinct typological units.

5. The determination of the wheel-shaped pottery development stages and significant turning points.

6. The evaluation of the wheel-shaped pottery-making technology and its stylistics spread directions. The interpretation of the possible ways of its advancement in different regions.

The novelty of the research. The presented conclusions do match with the knowledge formulated previously, and significant changes are not observed in this study. To mention a few, the wheel-shaped pottery and this certain technological innovation appears in the area in the 10th century AD, and the main directions of its spread are related to the West and East Slavs influence. However, there has always been not enough reliable empirical data to validate these presumptions. In terms of the macroregional level, the chronological development of the wheel-shaped pottery has not been ever presented from the typological point of view. In this study, to discern the types significant for the chronology, nearly all available collections of pottery were analyzed, and analogues from neighbouring countries were also taken into account. In this way, the ceramics characteristic of archaeological sites of Lithuania were studied in a wider context of neighbouring regions.

Assumptions on the dating of the wheel-shaped pottery were justified by a rather wide spectrum of the absolute dates gained from investigations in various sites in Lithuania, and also by previously relatively determined and now re-evaluated dates from some certain objects. Around 30 conventional, AMS ¹⁴C and dendrochronological dates were previously published in literature or excavation reports. Another 28 samples were dated to get the newest dating results for this particular study. These samples were taken deliberately – burnt material scratched from the vessels or taken from enclosed

archaeological structures were investigated. In many cases, the sample eligibility was evaluated before performing the analysis of the C and N isotopes (56 samples in total).

2. HISTORY OF RESEARCH

In this study, the history of ceramic research was analyzed. The fundamental theoretical directions of the pottery investigation and its typological classification were presented in the frames of the periodization of the approaches to the pottery introduced by C. Orton (Orton, Tyers ir Vince 1993, 4).

Further, the investigations on the Slavic wheel-shaped ceramics tradition in the neighboring areas were reviewed and main results were presented. To overview the historiography more systematically, the material was divided into three parts: history of research of a) the West Slavic, b) the East Slavic, and c) the Scandinavian and other non-Slavic territories. Lastly, the common situation of the investigations and knowledge level on wheel-shaped ceramics in Lithuania was described.

3. THE MATERIAL AND METHODS OF INVESTIGATION

The main sources for this research were archaeologically investigated archaeological sites of Lithuania dated to the 10th-13/14th centuries AD: the authentic reports of the excavations and assemblages of archaeological pottery found in those sites (kept in museums or other places). In total, 80 different archaeological objects were taken into account to draw up the typology, specify the chronology and evaluate the spread of the wheel-shaped ceramics in Lithuania (Fig. 1). Based on representativeness the assemblages of pottery were divided as primary and secondary.

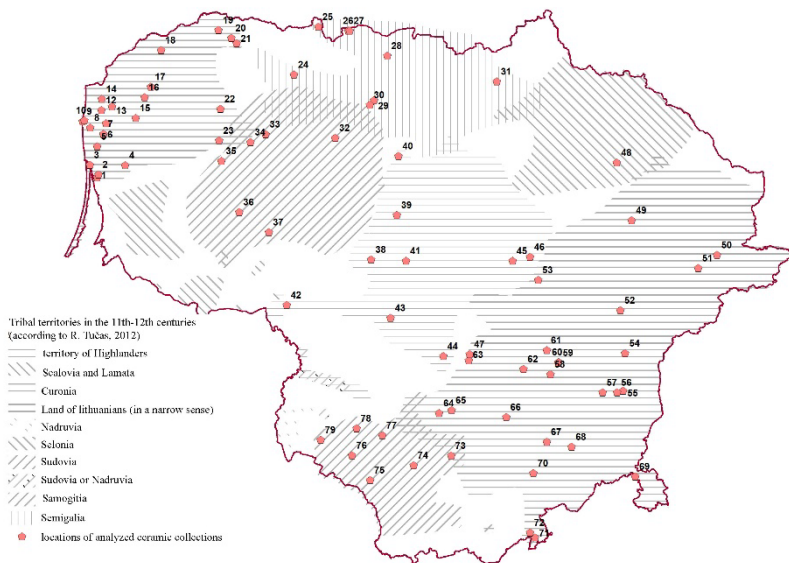


Fig. 1. The wheel-shaped pottery find places: 1- Žardė settlement; 2- Bandužiai cemetery; 3- Klaipėda Castle site; 4- Kalniškė, Gargždai, Anielinis hillfort and settlement; 5- Eketė, Kalotė hillfort and settlement; 6- Ėgliškė, Anduliai hillfort and forework; 7- Ėgliškė, Anduliai cemetery; 8- Girkaliai, Ramučiai cemetery; 9- Palanga hillfort and settlements; 10- Palanga II cemetery; 11- Kretinga, Padvariai cemetery; 12- Negarba, Jazdai cemetery; 13- Genčiai cemetery II; 14- Lazdininkai, Kalnalaukis cemetery; 15- Gintarai cemetery; 16- Imbarė hillfort with forework and settlement; 17- Laiviai cemetery; 18- Apuolė hillfort and settlement; 19- Dapšiai hillfort and settlement; 20- Jautakiai hillfort and settlement; 21- Daubariai hillforts and settlements; 22- Džiuginėnai hillfort and settlement; 23- Paplienija (Žarėnai) hillfort and settlement; 24- Papišė hillfort and settlement; 25- Lokava, Kerėžiai hillfort; 26- Žagarė hillfort II and settlement; 27- Žagarė hillfort and settlement; 28- Kalnelis hillfort II with foothill settlement and old village; 29- Daugėlaičiai settlement; 30- Jurgaičiai, Domantai hillfort and settlement; 31- Ažuolpamūšė hillfort and settlement; 32- Bubiai hillfort and settlement; 33- Pašatrija hillfort and settlement; 34- Kuršai cemetery; 35- Pribitka cemetery; 36- Vedriai hillfort with forework and settlement; 37- Ivangėnai hillfort and settlement; 38- Darbutai hillfort; 39- Vaitiekūnai hillfort and settlement; 40- Velžiai hillfort with forework; 41- Ruseiniai cemetery; 42- Jurbarko hillfort and settlement; 43- Jaučakiai hillfort and settlement; 44- Pakalniškiai hillfort and forework; 45- Šinkūnai hillfort; 46- Obeliai cemetery; 47- Rumsiškės cemetery; 48- Juodonyš hillfort and settlement; 49- Narkūnai hillfort with forework and settlement; 50- Mažulonyš hillfort and settlement; 51- Kretuonas Lake Island settlement; 52- Dubingiai Castle site; 53- Vaitkuškis hillfort and settlement; 54-

Piliakalnis, Nemenčinė hillfort and settlement; 55- Žvirbliai burial mound; 56- Rokantiškės burial mound; 57- Vilnius Old Town with suburbs; 58- Varliškiai, Orliškiiai burial mounds; 59- Buivydai hillfort with settlement and bailey; 60- Bradeliškiai hillfort; 61- Kernavė Old Town site; 62- Kakliniškės 5 settlement; 63- Kapitoniškės burial mound; 64- Naravai burial mound; 65- Paverkniai hillfort and settlement; 66- Aukštadvaris hillfort and settlement; 67- Žėronys cemetery; 68- Old Maceliai burial mound; 69- Stakai old settlement and burial mound; 70- Pamerkiai well; 71- Dubičiai (Salaitė) old settlement; 72- Margiai I settlement; 73- Alytus hillfort and settlement; 74- Kaukai hillfort and settlement; 75- Rudamina hillfort and settlement; 76- Zubriai old settlement; 77- Varnupiai hillfort and settlement; 78- Marijampolė, Kumelionys hillforts and settlement; 79- Piliakalniai (Rasiai) hillfort and bailey; 80 – Šeimyniškėliai hillfort and bailes.

Archaeological pottery assemblages from Latvia, Poland and Belarus were also taken as comparative material.

The analysis of the fragments of ceramic vessels (more than 20 000 pieces) kept in museums was undertaken using the standardised observation method. The quantitative and qualitative data concerning each collection of pottery and each separate fragment was registered in the database. They were used to systemise the material, as well as to reconstruct different pottery production stages, to depict the variety of ceramics and, with the use of **comparative inductive analysis**, to identify pottery characteristics significant from a chronological point of view. Data was sorted according to the system based on the division group–type–subtype–variant. Different groups were represented by contemporaneous, yet ‘genetically’ different vessels: A - vessels that represented the continuity of the earlier pottery-making tradition; B - wheel-shaped vessels and their imitations, associated with the spread of the Slavic pottery tradition; C - vessels that represented other technological characteristics or stylistic tradition. Following the main object of the research, group B was of the greatest significance.

The type of pottery was defined based on the similarities in morphology and decorating style. Each type had a defined time and spatial coverage. When the specimens belonged to one type, but had different heterogenetic technological characteristics, they were ascribed to certain variants.

The definition of types was done using an **intuitive grouping** based on the visual similarities and differences of the specimens. To test if the defined types covered certain chronological periods, and to perform the seriation of the data by arranging them into a chronological sequence, the material from West Lithuania was analyzed using the **correspondent analysis**.

The defined pottery types, their sequences and sometimes separate archaeological objects with particular stylistic characteristics were dated using **relative and absolute dating methods**. For the latter, both, the previously published ^{14}C and AMS ^{14}C contextual dates (30 dates, including the combined ones), and specially sampled burnt material scratched from the vessels and selected from archaeological contexts (28 dates) were taken. To lower the risk of the effect of the reservoirs (Kuncevičius, Laužikas, et al. 2015, 42-44, Piličiauskas, Skipitytė ir Heron 2018, Piličiauskas 2018, 170 and other), at first, the ratio between C and N isotopes in the selected burnt material was determined (C:N investigation; EA-IRMS). Also, several dendrochronological dates were taken into consideration when dating archaeological complexes. In some cases, relative and absolute dates from the same vessels or archaeological contexts were combined using the **cross-dating method**.

4. CHARACTERISTICS OF THE CERAMICS

The study comprises detailed depictions of separate visually identified characteristics of the making technology, morphology and decorating of the wheel-shaped ceramics.

The most important technological characteristics are: the specification of the additional components to the clay mass (crushed stone or sand; small-, medium-, large- or very large-grained particles), vessel building (modelling of coils or strips), formation manner (weakly, moderately, intensively wheel-shaped), thickness of the vessel walls (thin-walled, medium thick-walled, thick-walled), firing environment (uncontrolled mixed or controlled oxidizing).

The morphology of vessels was defined by identifying their general forms and forms of their parts. The majority of vessels were identified as pots of various sizes. They have been divided into vessels of two-, three-, or four- segments, according to the recognizable or presumed general form of the vessel. Also, some more detailed morphological characteristics were defined, such as the specific forms of vessel necks (K1-K9), rims (B1-B8) and shoulders (P1-P4).

Three characteristics of decorating were presented: a) traditional, continuing the local hand-made ceramics tradition, and b) representing some elements of the Slavic wheel-shaped pottery decorating tradition. Also, the ways of decorating, tools and instruments used were defined. The elements and motives of ornamentation were divided into long lasting and episodic.

Observation of the tendencies in the repetitiveness of some characteristics in some periods and some areas, several characteristics significant for chronology were determined. Their arrangement became an important basis for preparing further general classification of pottery.

5. POTTERY DEVELOPMENT AND TYPOLOGY IN WESTERN LITHUANIA

The pottery collections of Western Lithuania were selected from the Curonian archaeological objects: hillforts and settlements, a castle site and burials of cremated individuals. After a detailed analysis of the pottery taken from these objects, three major groups of ceramics that were in use in the western part of Lithuania in the period of concern were defined – A, B and C, and a chronological classification system was prepared for the groups A and B.

The A group was divided into two types (KA1 and KA2), whereas the B group comprised up to seven different types (KB1-KB7) that represented wheel-shaped pottery and its imitations. The last, C group, consisted of only one type (KC1) and included all the reductive pottery or, as it was known in Lithuania and Poland, – the ceramics of the

Teutonic Order (Žulkus 2002, 112, Pluskowski 2013, 108, Ubis 2018, 172). After the analysis of all three groups of ceramics, a model of their chronological (and spatial) spread in Lithuania and further beyond its borders was represented. Some relations with the wheel-shaped pottery of western Slavs as well as with the Teutonic Order pottery were indicated. In addition, the chronological coverage of the three pottery types was determined. The detailed sequence of the typological units was arranged using the correspondence analysis.

Following the results of the Western Lithuanian pottery analysis, the appearance of the wheel-shaped and the wheel-shaped imitating ceramics in this area was reconsidered. The time of its emergence was dated to the second half of the 10th century AD, and three stages of its development were determined.

6. THE DEVELOPMENT OF THE CERAMICS IN THE NORTH, CENTRAL, EAST AND SOUTH LITHUANIA

In this study, pottery collections from selected archaeological objects in four different regions (north, central, east and south Lithuania) were overviewed with the aim to analyze their characteristics and dating. The majority of these assemblages were taken from hillforts and settlements. Some collections were selected from the early cultural layers of medieval towns, dating to the 13th- the beginning of the 14th century AD. In the case of the analysis of the east Lithuania region, several objects from cremation cemeteries and burial mounds were chosen.

The investigation of the pottery of the 10th-13th century AD was based on the detailed system of typology of the vessels ascribed to group B. To arrange the types more systematically, and to determine their chronological coverage, the vessels of group B were additionally divided into two subgroups. The first one comprised nine types (BI.1-BI.9), whereas the second one – seven types (BII.1-BII.7). The defined pottery types were later analyzed, their spread in Lithuania and beyond

its borders was traced, as well as their chronology was overviewed. Two stages of the wheel-shaped pottery and its imitations were determined.

7. ADOPTION AND ADAPTATION DEVELOPMENT OF WHEEL-SHAPED CERAMICS, ITS STYLISTICS AND TECHNOLOGY IN LITHUANIA IN THE 10th-13th CENTURY AD

The wheel-shaped ceramics and its imitations had spread in various directions and in some different stages. Different factors – the import of pottery, travelling craftsmen, apprenticeship, and the copy-making of the vessels – influenced for these processes.

8. CONCLUSIONS

1. The wheel-shaped ceramics and its imitations appearance in Lithuania should be associated with a phenomenon that had spread firstly in the territories inhabited by Slavs, and also in the other wider European regions. This tradition of vessel making had formed in the Danube riverside region, and, with the influence of various cultural processes, in the last quarter of the 1st millennium AD, spread into various directions and soon became common in the biggest part of the territory inhabited by Slavs. In the different parts of this wide region, affected by internal and external factors, stylistically and technologically separate tendencies had formed. They individually transformed during the time. Therefore, all of them could be defined as different types related in some development stages.

The adoption and development of wheel-shaped ceramics in Lithuania and in the economically and geographically similar neighbouring regions in the 10th-13th century AD were not alike and contemporaneous. In the areas inhabited by western Slavs in Germany and Poland – Pomerania, Kulm, Podlachia, Northern Masovia – this

pottery appeared in the 7th-8th century AD. In the second half of the 10th century, a significant elevation stage could be defined: pottery products became standardised, and some changes in their stylistics can be observed.

In the Slavic regions that were close to Lithuania, the weakly wheel-shaped ceramics appeared only in the 10th century AD. Due to some rapid socio-cultural changes and the formation and growth of the urban-like environment in Kievan Rus, the wheel-shaped ceramics soon developed and acquired the characteristics of a professional craft. At the end of the 10th century and in the 11th century AD, in many areas, the pottery products had already excelled by technological features and an outstanding stylistic expression that met the high standards dictated by Kyiv masters. Around the 13th century in these regions some transformations in pottery making could be observed: changes in technology, standardization of products, and vessels of new functions appeared.

Wheel-shaped vessels dating to the end of the 1st millennium AD are also found in the cultural layers of the main economic centres of the Baltic Sea region, i.e. beyond the borders of the territory inhabited by the Slavs. In the second half of the 10th century and the 11th century AD, in the context of internal socio-cultural transformations and strong intercultural relations, the technology of the wheel-shaped ceramics making spread and was adopted in the lands of the Vikings, the Prussians, the Balts of the nowadays Latvia, also of the Lyvians and the Fins. All the pottery types defined in those territories had clear relations with the ceramics in the neighbouring Slavic regions.

2. In the 10th-13th century AD in Lithuania, the wheel-shaped ceramics and its imitations ceramics group (B) comprised vessels or their fragments of different technological, morphological and decorating characteristics that had changed through time and spatially. During the analysis of the earliest pottery types belonging to this group, a significant correlation in the ways of vessel formation was noticed. This feature has led to defining some sort of production sequences that represented different ways of technology adoption that

could also vary in a range of a certain type. The stylistic characteristics of the vessel morphology and decorating that could be grouped were selected to determine the pottery types which had chronological and spatial limits. Some characteristics of the morphology and decorating were significantly well-identified vessels. They had analogues in the neighbouring countries' pottery collections that were of well-based dating. These analogues led to defining the chronology and the directions of the spread of these types of vessels.

3. After the analysis of the correlating characteristics of the wheel-shaped ceramics, different types of pottery types of the 10th-13th century AD were important for the general chronology. Their spatial spread and coherence with the neighbouring regions became a basis to group them into two different systems. One of them comprised West Lithuania (the southern part of the Curonian area), whilst the other included all the rest regions of Lithuania that were taken into the concern of this study (except the lands of the Lamatians and the Skalvians. To emphasize the chronology and the intensity of spread of the wheel-shaped ceramics and its imitations (group B) in these systems, attention was paid to the other contemporaneous, yet different production technologies representing ceramics (groups A and C).

4. The system of the chronological typology of the ceramics used in West Lithuania in the 10th-13th century AD consists of three groups of vessels: A, B and C. Group A is divided into two types of hand-made pottery of local tradition (KA1 and KA2). The KA2 type had several characteristics showing imitating or copying the features common to the wheel-shaped vessels of group B, e.g. rough decoration of pots. Hand-made vessels existed in this region up until the 13th century AD, yet, their quantity had lowered through time. Group B comprised all the types and their technological variants of the wheel-shaped ceramics or its imitations (KB1-KB7) that coexisted or replaced one another in the period from the second half of the 10th century until the end of the 13th century AD. Group C included all the

vessels of other production technology (reductive KC1) that appeared and spread sporadically in the 13th century AD.

5. In the rest of Lithuanian territories in the period of concern the ceramics of group A were in use. Its variety of vessels was wide, they had differentiated in areas of different tribes. In many cases, though, it was very barely known and investigated.

Vessels of various morphological and technological characteristics that continued earlier traditions might have been in use up until the 12th century AD. When the wheel-shaped ceramics spread, some of those vessels had got weakly expressed, rough, wheel-shaped pottery imitating features.

Group B, which comprises the wheel-shaped ceramics or its imitations, was divided into two subgroups – BI and BII – that were of different chronology. The subgroup BI consisted of nine types of vessels (BI.1-BI.9) of varying production technology and stylistics. Their dating was in general defined as the 10th-12th century AD. The appearance of the earliest wheel-shaped vessels of the subgroup BI (BI.2-BI.4) was dated to the 10th century AD. A massive spread of these vessels was observed in the eastern and southern regions of Lithuania. In the lands far from the contact zones with the neighbouring Slavs the wheel-shaped ceramics might have spread a bit later or could have been weakly expressed.

The subgroup BII comprised seven types – BII.1-BII.7. These were the vessels produced starting from the second half or the end of the 12th century AD. In many cases, their latest dating limit went beyond the chronological framework of this study.

6. The change in the quality and quantity of the wheel-shaped pottery and its imitations shows that in the 10th-13th century AD, its adoption and adaptation development went through some separate stages. In West Lithuania, three such stages were determined. During the first stage, in the second half of the 10th century and up until the 11th century AD, the very first wheel-shaped vessels and their imitation (KB2 type) appeared. Also, some transformations were apparent in the hand-made pottery at that time.

The second stage is dated to the second half of the 11th century/the beginning of the 12th century until the end of the 12th century/the beginning of the 13th century AD. In this stage, the variety of wheel-shaped ceramics had widened, yet the number of variations in technology lowered.

At the beginning of the 13th century AD, the third stage in West Lithuania began, when the traditional hand-made pottery disappeared and the technology of wheel-shaped ceramics was standardized. New types of pottery appeared along with the new features, out of which the stylistic and technological innovations brought by Teutonic Order could be emphasized.

In the rest territories of Lithuania, only two stages of development were determined. The first stage began in the 10th century AD or even later in the peripheral areas, and presumably ended in the second half or the end of the 12th century AD. In this period the traditional hand-made pottery had been still produced, whilst, in parallel, wheel-shaped vessels of different production technology and various stylistics were also in use. While wheel-shaped ceramics spread intensively in the 11th century-the first half of the 12th century AD, its hand-made or weakly wheel-shaped replicas were produced and used.

The second stage of the development of the wheel-shaped ceramics in the territory of focus could be related to the spread of the pottery types of group BII. Thus, it started in the second half or the end of the 12th century and went beyond the chronological framework of this study. In this stage, the hand-made pottery had been renounced, it was not produced and used anymore in the household. Instead, the wheel-shaped ceramics was adopted and acquired a standardized technological and other stylistic character.

7. The wheel-shaped ceramics types determined in Lithuania have supplemented the knowledge about the spread directions and ways of the wheel-shaping technology, the wheel-shaped pottery or its 'idea' in general. In the early stages, wheel-shaped ceramics and its imitations in West Lithuania were close to the Baltic region pottery by their stylistic character and development. The defined types had

stylistic analogues with Vipperow, Teterow and other vessels that were widely used by the West Slavs and in the territories of the Prussians or the Vikings, who were in contact with them. In the late stage, some of the wheel-shaped pottery types were stylistically supplemented by the influence of the Teutonic Order ceramics.

On the other side, in the first stage, the North, East, Southeast and South Lithuanian regions (and, through them, towards the Central Lithuanian regions) the spread of the wheel-shaping technology and the stylistic character of the pottery is more related to the neighbours in the closest vicinity – the East Slavs, especially the fashion of the Polotsk or Volhynia kingdoms, also to the stylistic tendencies determined by the traditions of Podlachia, Masovia. In the late stage, the directions of the stylistic influence were not determined. The simplified forms of vessels, the unified standard of technology, and the prevailing variety of decoration styles could have been conditioned by local standards of supply and demand.

8. The spread ways of the wheel-shaped pottery or its imitations in the 10th-13th century AD were also different. In the earliest stages, the ceramics of especially high-quality features could be interpreted as imported. In the sites where the high-quality wheel-shaped pottery was numerous, the production and spread of the wheel-shaped pottery, as well as the production skills could be related to the work of a local or new-coming master.

Imitations of low quality in the early stages could be regarded as local homemade production of less significant pottery makers or apprentices. In the late stage, the widespread wheel-shaped ceramics might be related to local production, whereas its spread could be linked to the exchange and trade of local importance.

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