

## Self-Presentation

### 1. Name and Surname.

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### 2. Certificates, academic or art titles giving the name of the institution which granted the title, the year the title was given and the name of dissertation.

Doctor of Philosophy in humane sciences with the specialisation in archaeology awarded by The Scientific Committee of the Institute of Archaeology and Ethnology of the Polish Academy of Sciences in 2006 for doctoral dissertation *Medieval Leatherworking in Chartered Kolobrzeg*.

### 3. Information on employment in scientific and art organisations.

Employment in the Institute of Archaeology and Ethnology of the Polish Academy of Sciences since 1999.

### 4. Achievements as mentioned in Art. 219.1(2) of the Regulation.

I indicate the research arising from Art. 219.1(2a) of the Act of 20 July 2018 published in a monograph *Craft in Late Medieval Towns on Southern Coast of the Baltic. Archaeological Study.*, Szczecin 2019.

The study of crafts in late medieval towns on southern coast of the Baltic was the domain of historians for many years; however, for a few decades now it has been archaeology that plays a significant role in these studies. Excavation works carried out on a large scale in historic centres of towns have contributed to the discovery of abundant and diverse sources which are a perfect basis for studies on many aspects of crafts. They are not only an invaluable complement to written sources, but also create a wide opportunity to explore many phenomena which can not always be discerned in these sources.

The progress of archaeological works as well as the type and quality of uncovered sources made it possible to carry out such research in more than twenty cities: Tallinn, Tartu, Riga, Elbląg, Gdańsk, Puck, Stargard, Pyrzyce, Szczecin, Kołobrzeg, Pasewalk, Neubrandenburg, Strasburg, Anklam, Greifswald, Stralsund, Ribnitz, Rostock, Güstrow,



Wismar, Lübeck and Schleswig. The major aim of such an undertaking was the identification of particular types of crafts, verification of the repertoire of produced objects, tools which were used as well as raw materials and technological processes. Thanks to the unearthing of the remains of production sites it was also possible to consider issues relevant to the equipment of workshops as well as to the organisation of craft production in urban space.

Available archaeological sources made it also possible to define the type of transformations in the technology of production and the range of craft production which accompanied the process of urban settlement. Settlers from i.e. Lower Saxony, Rhineland, Westphalia and Thuringia arrived in towns established to the east of the River Elbe and brought with them new technology of production and a new repertoire of goods. Of importance here seems to be an attempt to answer the question how quickly the new technology spread in particular towns. Local population also took part in establishing and shaping municipal centres. Hence it was very important to identify local craft tradition and to define its role in craft production. Another matter which can be considered from the perspective of archaeological sources is the standardization of craft production in towns located on the coast of the Baltic which can be noted in the course of time. Of no less significance seems to be the definition of local identity with regard not only to the type and intensity of craft production which was characteristic of some towns located in a particular region or just functioning within certain political structures.

The timeline of this study covers the period of the High and the Late Middle Ages; it is referred to as commencing around the 12<sup>th</sup> and the 13<sup>th</sup> centuries, when towns in the area on the south coast of the Baltic Sea started to be organised under a series of German laws, and finishing at the turn of the 15<sup>th</sup> and the 16<sup>th</sup> centuries when major transformations in raw materials used, the technology applied as well as the range of produced goods took place. These transformations mark yet another stage of the development in craft production, associated with modern times.

Seen from the perspective of archaeology, more than twenty types of craft activity were recognised in towns located on southern Baltic coast such as pottery, blacksmithing, bell founding, red brass founding, cooperage, wood turning, carpentry, woodworking, wrighting, weaving (including cloth making), tanning (including red and white tanning), shoemaking, patten making and cobbling, bag making, horn working, founding of non-ferrous metals, goldsmithing, rope working, ship building, masonry, fishery, bakery, beer brewing, public bathing and glassmaking. The list includes a much more limited number of crafts than lists compiled on the basis of written sources, which usually include list of a dozen or so, and

sometimes even more than a hundred trade specialties in individual towns. This disproportion arises out of the very characteristics of archaeological sources, which do not reflect all traces of human activity without any exceptions.

Pottery was an important branch of crafts in towns on the south coast of the Baltic, which satisfied basic needs relevant to the furnishing of households, but also producing utility goods used in other types of professional activity, i.e. for the needs of fishery or spinning. Pottery workshops were characterised by a large area which made it possible to install necessary production facilities: kilns, pits for preparing clay as well as room for storing fuel, which were located in backyards. Buildings in which pots were probably made and which were also used as storage spaces were their integral parts. Kilns unearthed in towns discussed here were two-chamber structures of varied capacity, which limited the number of pots fired at one time. It could, to a certain extent, indicate a diverse production output in individual workshops, which might have depended on the economic situation of their owners, the type of activity which was carried out and sales opportunities.

In the period from the 13<sup>th</sup> to the 15<sup>th</sup> centuries the basic type of ware was fired in a reducing atmosphere. The so called traditional pottery, produced in technology characteristic of pottery made in the first period of Early Middle Ages, was still produced on a relatively big scale in Pomeranian towns: Kołobrzeg, Szczecin, Stargard, Gdańsk and Puck as well as Elbląg located in the territory of Prussia at an early stage of their development. In some of them, e.g. in Kołobrzeg and Szczecin the production of such ware could have continued for decades after the towns were organised under German law. Glazed red ware was produced in Lübeck and Neubrandenburg. It was produced on a relatively small scale and gradually fell into disuse in the course of the 14<sup>th</sup> century. As early as in the course of the third quarter of the 15<sup>th</sup> century clear signs of gradual marginalization of the production of grey ware appear; in the second half of that century earthenware, glazed or unglazed gained in importance. Also in the 15<sup>th</sup> century, with the growing popularity of tiled stoves, the production of tiles increased.

The activity of blacksmiths in all towns subject to this study is confirmed by a repertoire of ironware which comprised numerous finds. In some centres also places of production were uncovered. Smithies were located mostly in basements of front buildings, initially made of wood which later on gave way to brick structures as this type of building material became more and more popular. They were equipped with a flat hearth made of brick, rarely clay. High hearths with chimneys were found only in a few forges uncovered in Wasserstraße in Stralsund and at Wollenweberstraße 33 in Rostock. Hearths were usually

*Agata - Aglun*

located in enclosed spaces, very rarely in open spaces. Results of specialist investigation indicate that blacksmiths worked high quality iron obtained from iron ore. The demand for the raw material was satisfied with import from mountainous regions in southern Germany and from Sweden. Processing scrap iron was also of considerable importance; the remains of such a practice are registered in e.g. Rostock and Kołobrzeg.

Red brass founding was an important branch of craft in towns located in western part of the Baltic coast, from Lübeck to Stargard. Cast bronze tripod cauldrons, standardized in terms of design and sizes, the so called *Grapens*, were produced on a large scale in all these centres. Their production and sale was even subject to legal regulations, which concerned e.g. the obligation to mark products. Fragments found in excavations dating back to the second half of the 14<sup>th</sup> and the 15<sup>th</sup> centuries from archaeological sites in Stralsund, Greifswald, Güstrow and Anklam display pieces of casting moulds with incised coats of arms and house marks of producers. *Grapengiessers* also dealt with, albeit to a lesser extent, the casting of candle holders, censers, buckles and bells. Some foundries, such as the one at Wollenweberstraße 33/Sackpfeife w Rostock in addition to its main production also made bone dice for playing games.

Only small bells were made in red brass foundries. Special venues were prepared to cast large bells. One of them was uncovered in the yard of the Dukes of Mecklenburg Castle in Wismar, where a few bells were cast for local churches. Remains of the process of bell casting were registered also in Güstrow, Ribnitz and Stargard.

Traces of goldsmithery were identified only in the biggest centres, e.g. in Rostock, Stralsund, Greifswald and Riga. In towns located on the Baltic coast the activity of casting decorations, buckles and various accessories from tin, copper and bronze which were used as ornaments on leatherwear was carried out on a very limited scale, in addition to the main production or in combination with other forms of craft activity. Remains of such an activity were uncovered in foundries at Breite Straße 26 in Lübeck, at Wolllenweberstraße 33/Sackpfeife in Rostock and at Lange Straße 51 in Greifswald. In turn, workshops in which metal decorations and accessories and simultaneously bone and amber rosary beads were produced were uncovered at Semlower Tor in Stralsund and in the market in Greifswald.

Of importance to the economy of towns located on the Baltic coast was the production of barrels, which were a universal form of packaging used in transport, storage and keeping a variety of goods. The results of analyses of artefacts recovered from archaeological sites in Greifswald indicate that coopers produced at least a few types of barrels of standardised capacity which were adapted for storing and transportation of certain goods. Said craftsmen

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worked mainly for the needs of trade and brewery. Cooperation with brewers quite often conditioned the location of cooper's workshops, which is proved by finds relevant to the production of barrels uncovered in Rostock, in a quarter between Wokrenterstraße and Lagerstraße, a neighbourhood which was populated mostly by brewers in the Middle Ages.

A separate type of activity of cooperage was the making of small, wooden staved containers and vessels, primarily bowls. They were mostly produced from wood of coniferous trees: pine, spruce, rarely fir and larch. Numerous finds of such vessels excavated in almost all towns subject to analysis proves that they were mass produced, although only in Gdańsk, in a quarter in ul. Łagiewniki and Rybaki Górne, the remains of workshops where such production was carried out were identified.

Turnery was another branch of craft which produced wooden vessels. The main raw material used for their production was wood of ash and maple trees; wood of alder, beech, birch, lime tree and poplar was used to a lesser extent. In all towns one-side turned wood bowls were commonly produced; two-side turned wood bowls were produced to a much smaller extent.

Turning workshops could also produce goods hollowed or planed from wood, i.e. kneading troughs, spoons or dippers. Their production required not only special skills, but also a raw material of good quality. Carefully made kneading troughs are among artefacts uncovered in Schleswig, Lübeck, Szczecin, Kołobrzeg and Puck. Bowls with insets belong to a special collection of turned wood vessels: they were produced in Szczecin, Greifswald, Stralsund, and, presumably, also in Anklam. Remains of specialised production of spoons, in turn, were registered in Schleswig, Szczecin and Riga.

Characteristic containers made of birch bark could also have been produced by craftsmen. They were cylindrical and usually fitted with lids. Such objects are known mainly from towns located in eastern part of the Baltic coast.

Few and far between are finds of cart wheels. Preserved to a various degree, these artefacts are material remains of the activity of wheelwrights. Cartwheels uncovered in towns which are subject to this analysis were made in the same way and were of approximately the same size. These observations would suggest that in all towns vehicles were produced of just about the same size and carrying capacity. An important part of the activity of wheelwrights was also providing services of wheel change and a wide range of repairs.

Tanning of animal skins and production of various goods from this raw material belonged to common craft activities in late medieval towns located on the Baltic coast. The basic raw material used in tanning trade were skins of domestic animals: cattle, goats and

sheep. Only in few centres and to quite a limited extent skin of wild animals was used. Craftsmen, mainly tanners and shoemakers were supplied with raw material for leatherworking by local slaughterhouses, which simultaneously conditioned access to a particular type of raw material.

One of the characteristics of tanneries, especially those which used vegetable tanning in leatherworking, was their large area and similar layout. In each of them there were at least a few vats and tanning pits located in buildings and partly also in yards, and sometimes facilities which were used to ensure supply of water (wells or water pipes) or drainage (gutters). Production areas were usually located in backyards. Some part of the work was carried out outside the tannery, on a nearby watercourse or some other water reservoir. These places were distinct from other spaces in the urban environment: there were open piers or other amenities; examples of their remains were uncovered Greifswald and Güstrow.

The type of leatherworking which is best documented in archaeological sources is shoemaking. Shoemakers used mostly rawhide of cattle for the production of shoes; to a much lesser extent they would use rawhide of goats and sheep and hardly ever of deer and horse. The same type of shoes and the same production technology were applied in all towns in the region of interest to us, which clearly points to the standardization of the production process and patterns. It was only in Tartu, Tallinn and Riga, in the oldest contexts relevant to the functioning of municipal towns, where apart from footwear produced according to standards prevailing in the Late Middle Ages also finds made in technology typical of the early medieval shoemaking were registered. Although the finds were not very numerous, they seem to point to the older manufacturing traditions fading into oblivion in those towns.

In the early stages of the development of towns founded on German law shoemakers made not only shoes; they would also produce a wide repertoire of leatherwear. In the course of time their activity became limited primarily to the production and repair of shoes. In Kołobrzeg the process became apparent no sooner than almost over a hundred years after the location of the town, about the middle of the 14<sup>th</sup> century. In a much later located Puck (ca in the middle of the 14<sup>th</sup> century) the process developed at a much faster pace because clear signs of the shoemaking process becoming a specialised and professional activity were to be noticed as early as after a few decades of the development of the town, in the last quarter of the 14<sup>th</sup> century. Due to lack of relevant analytic studies it is difficult to evaluate the degree to which shoemaking was a professional activity. It needs to be presumed, however, that the process took a similar course, although in some major centres, such Lübeck, Rostock,

*Mont - Puck*

Stralsund, Greifswald or Gdańsk, where there was a remarkable specialisation in trade, it could have been initiated much earlier, most probably as early as in the 13<sup>th</sup> century.

Shoemakers who tanned rawhide on their own had to have sufficiently large premises at their disposal which made it possible to install necessary stationary facilities: vats, chests or tanning pits. Results of archaeological excavations in Lübeck (plot at Hundestraße 95), Kołobrzeg (plot at E. Gierczak 7) and Puck (plot at Plac Wolności 14) indicate that this part of activity was carried out in yards. Most probably spaces where the actual production of goods was carried out might have been located inside the dwelling spaces of houses. In case of craftsmen who purchased tanned leather or who used common tanneries small spaces were absolutely sufficient to accommodate a table and tools as well as materials necessary in the production process.

The collection of shoes worn by inhabitants of late medieval towns included pattens. This type of footwear appeared in the region of interest to us as early as in the 13<sup>th</sup> century, however, it became popular no sooner than in the 14<sup>th</sup> century and was still worn as late as in the 16<sup>th</sup> century. At the beginning it was shoemakers who produced pattens. In one of workshops in Puck (plot at 10 Lutego 4) registered finds would indicate that such footwear was produced and repaired there. Guild statutes of Lübeck shoemakers include provisions which allowed, albeit on certain conditions, the production of pattens. The presence of pattenmakers' guilds in Riga is confirmed by written sources dating back to as early as the 14<sup>th</sup> century. It was no earlier than in the 15<sup>th</sup> century, and mostly in major centres such as Lübeck, Wismar, Rostock and Gdańsk that pattenmakers' guilds appeared.

Another trade whose activity was relevant to shoemaking were cobblers. Written sources dating back to the 14<sup>th</sup> and 15<sup>th</sup> centuries confirm the presence of such craftsmen in Lübeck, Wismar, Stralsund, Rostock, Greifswald and Gdańsk. Cobblers primarily repaired footwear and produced it from second-hand leather. Such a production profile had a major influence on the type of raw material which they used, which was obtained almost entirely from second-hand shoes.

Many other specialists produced goods from grain leather; they included bag makers, glove makers, saddle makers and leatherworkers. Most frequently registered remains of their activity are ready-made goods: scabbards and sheaths, bags, cases, purses, belts, gloves, elements of saddles, harness and leather clothes. Those goods were characterised by standardised design, technology of production and ornamentation, hence it can be concluded that they must have been made in a mass production process carried out by specialised craftsmen. As early as at the end of the 13<sup>th</sup> century there were specialised workshops in

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Kołobrzeg which specialised in the production of sheaths and where knives were finished, i.e. facing of uppers and handle covers made on the premises. This type of trade probably did not ensure a decent income, hence some additional activity had to be carried out; it included, *inter alia*, repairs of iron pots, production of goods from antlers, bone and horn as well as repairs of leatherwear. Such an activity could have been a way to canvass a wide range of clients and increase income. Relics of a workshop specialising in the production of goods from leather were uncovered also in Kołobrzeg. It needs to be emphasised that in this workshop, apart from new leather, also recycled material obtained from second-hand shoes was used in the production process.

Production of goods from bone, antlers and horn was similar in towns which are of interest to us. The technology of production, design and, subject to certain reservations, also raw materials were the same everywhere. High quality of uncovered goods proves that proper tools were used and that strict technological standards were applied. The production of combs was the most professional one. Other goods, such as scabbards and handle covers could have been produced in combination with the production from other raw materials, or in addition to the main activity. This can be seen with reference to workshops producing bags in Kołobrzeg, which were uncovered on plots located at ul. Armii Krajowej 5A and G. Narutowicza 36. Accessories for playing games, in turn, apart from being produced by horn workers, were also produced by other specialists, such as *Grapengiessers*, which was the case in one of the workshops at Wollenweberstraße 33/Sackpfeife in Rostock. It was just an additional activity, carried out as supplementary to the basic one.

Numerous written sources indicate that there were specialised workers who produced rosaries in many towns. The analysis of archaeological sources shows that such objects were also produced in horn working workshops which produced a wide range of goods, such as combs and cubic dice for playing games, which was established in case of a workshop at Huxstraße 80 in Lübeck. Rosaries made of horn beads could have been one of many types of goods made in workshops producing ornaments from coloured metals, for instance in workshops recovered from the site near Semlower Tor in Stralsund and in the market in Greifswald. Excavations carried out in Tallinn indicate that the production of buttons was of a similar character; it was carried out in combination with the production of other goods from bone or glass. The above observations would suggest that in some towns located on the Baltic coast production of goods from horn, due to a large supply and low price, was not subject to any limitations and that such an activity could have been carried out in many types of workshops.

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Remains of amberworking, primarily relevant to the production of rosaries, were uncovered in Lübeck. Relics of workshops where such an activity was carried out were uncovered in plots at Hundestraße 11 and 13-15. Another town where remains of intensive amberworking were uncovered is Riga, where numerous assemblages of amber artefacts were excavated. They can be relevant to craft workshops which specialised in the production of ornaments and rosaries.

Aside from other crafts, remains of textile manufacturing belong to a relatively rare archaeological finds. Excavation materials register mostly ready made goods: pieces of cloth; tools used for their production are few and far between. In towns discussed here varied types of textiles were produced: they differed with regard to yarn, thickness, weaving method or finish. An overwhelming majority of textiles are remains of clothes; sometimes they are thick textiles which could be parts of throws, blankets, etc. In harbour centres, e.g. Elbląg, Gdańsk, Kołobrzeg and Lübeck, parts of sacks were identified. It can be presumed, then, that weavers carrying out their activity in those towns produced also technical textiles to satisfy the needs of trade and transport.

Together with establishing and spreading masonry in towns located on the coasts of the Baltic new types of specialised crafts appeared; they were relevant to the production of bricks and lime burning as well as stone masonry. Their activity was subordinated to the needs of various investments, both public and ecclesiastical as well as private. In most cases 'ready products' are uncovered in the course of excavation works, such as remains of walls of various buildings and structures, but also random finds of bricks, tiles or stone blocks as well as objects which are referred to as architectural details. Remains of brickworks were identified in Greifswald and Tartu. Quite often, especially during the erection of huge structures, lime kilns were built at the construction site. Such structures were uncovered e.g. in Rostock, Greifswald, Pasewalk and in Gdańsk.

Location of towns of interest to us on rivers, often close to big water reservoirs created ideal conditions for the development of fishery, which played a vital role in supplying inhabitants with foodstuffs. The activity of fishermen is confirmed in archaeological sources by finds of various tools and fishing gear. Such artefacts were usually excavated in various parts of towns, however, their clear concentration in some parts of the urban settlement, close to a watercourse, can be easily observed. Fishermen caught various species of fish while some of them, such as cod in Kołobrzeg, could have been subject to a more intensive fishing activity, which most probably resulted from the accessibility of fishing grounds.

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Of special significance to the economy of port towns was boat building and artefacts relevant to this type of activity belong to typical finds excavated in their area. In each of them there were special designated places where ships were repaired. Such places were identified in Stralsund, Rostock and Lübeck. Remains of a shipyard were uncovered in a quarter located on the Motława in Gdańsk. The most popular type of a seagoing vessel in the Baltic was the cog. Cogs might have been built in all major port towns where there was a big demand for sea going vessels. The development of shipbuilding was to a large extent conditional upon access to resources of the right species of wood. Of primary importance were rich forested areas of coastal hinterland. Most probably it was those considerations that provided for a successful development of shipbuilding in such towns as Elbląg and Gdańsk, which were surrounded by vast areas of forests. Moreover, they were connected with areas located further inland, from which logs were floated down the river. Especially Gdańsk was a major centre of shipbuilding as early as since the second half of the 14<sup>th</sup> century.

Ropework was a craft closely associated with shipbuilding and handling of seagoing vessels. An overwhelming majority of ropeworking finds is characterised by high quality, which would indicate that they were made on rope walks. Ropes and lines uncovered during archaeological excavations are of various types and made of various raw materials. They were used in the process of shipbuilding, in transport and many daily activities. Seats of rope workers were identified in Gdańsk, on the outskirts located on the northern side of the Motława, in a quarter located in ul. Długie Ogrody. Characteristic of plots located in the area was their exceptional length, which facilitated rope working.

The activity of bakers is very well registered in Lübeck, where a few bakeries were uncovered. In other towns: Wismar, Rostock, Stralsund, Greifswald, Kołobrzeg and Puck only individual bakeries were uncovered. Bakeries were mostly located in yards, just behind front buildings, sometimes in their basements. Production premises were constructed of fireproof materials, which was a precaution taken to minimize the spread of fire hazard. The furnishing of a bakery included a one-chamber oven, the area of which was from about 8 to 12 sq. m. Initially ovens were made of clay, later of brick. Such facilities were used for a relatively long period of time, up to dozens of years. Bakeries which continued their activity for centuries were uncovered in Rostock and Lübeck.

Well developed beer brewing was a characteristic feature of late medieval port towns, however, there were craftsmen who carried out this type of activity also in centres located in hinterland. Relics of a workshop where beer was brewed were uncovered in Stralsund. In

Puck and Gdańsk in turn malt-drying ovens were unearthed. Premises where beer was brewed were usually located in front town houses or in backyards of plots, in outbuildings. Some breweries, especially in major towns (e.g. at Frankenstraße 57a in Stralsund), had their own water supply system.

Baths were an important element in the life of medieval towns; they were the places of work of bath attendants, barbers and sometimes prostitutes as well. Public bath houses do not belong to places which would be often uncovered in the course of archaeological excavations, and in case of towns discussed here the only such structure was uncovered Greifswald.

Remains of glass production dating back to the 13<sup>th</sup> and the 14<sup>th</sup> centuries were uncovered in Riga and Tallinn. Craftsmen carrying out their activity in those towns specialised in the production of beads for necklaces and ornaments of clothes.

Migration of population from northern and central Germany had a major influence on the development of crafts in municipal towns located on southern coast of the Baltic. Settlers arriving to newly chartered towns brought with them new technology of production, new patterns of consumption and new forms of the organisation of production. The changes can be seen in almost all areas of crafts, and they would need to be considered in three aspects, i.e. from the angle of raw materials which were used and the technology of production; the assortment of goods which were produced; and professionalization in production as well as the development of new trades.

Said transformations are especially visible with regard to pottery. In the overwhelming part of the area of interest to us pots were fired in an oxidising atmosphere or, more frequently, in the uncontrolled one, in simple one-chamber kilns. In the 12<sup>th</sup> century, in western part of the Baltic coast, e.g. in Schleswig and Lübeck grey ware pottery appears, which was fired in a reducing atmosphere. Two-chamber kilns in which the atmosphere and the firing process could be controlled became popular. Since the 13<sup>th</sup> century, along with progressing German colonisation, the knowledge of grey ware pottery spread to the east. In towns which were successively located on charters, in Mecklenburg, Pomerania and Prussia local production of grey ware pottery was initiated from the very moment of their establishment; other type of pottery, unknown earlier on southern coast of the Baltic, was red ware glazed pottery. It could have been produced in Lübeck as early as in the second half of the 12<sup>th</sup> century, and in Neubrandenburg since the turn of the 13 and the 14<sup>th</sup> centuries.

The factor which was of basic importance for the development of blacksmithing in late medieval towns was access to rich iron ore processed in smelter centres at that time. Since the 13<sup>th</sup> century bigger forges than in previous periods started to be used in Central Europe; also,

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smelting temperature was higher. The use of such facilities considerably increased the profitability of iron production, even in case of ores where the content of iron was lower. Late medieval blacksmiths also applied standardised technology in the production process; an example of such a technology is the production of knives. In the 13<sup>th</sup> century the production of knives in which only the blade was made of steel cover became popular. Such a method considerably simplified the process of manufacturing, which in turn made it possible to produce standardised and relatively cheap goods for sale. Most probably the process of diversification into various trades commenced at the end of the 13<sup>th</sup> century. Archaeological sources confirm the activity of blacksmiths, including farriers, who made major objects of iron or steel; blacksmiths of minor objects such as locksmiths, nail makers and knife makers as well as producers of anchors.

Carpentry also underwent major transformations. Until the 13<sup>th</sup> century log framed houses and wattle houses were the prevailing method of constructing houses on southern coast of the Baltic Sea from Lübeck to Riga. When towns started to be located on charter pillar houses and frame houses appeared; however, it was the frame construction that was of special importance for municipal housing. The application of such a construction method made it possible to build houses of any size, and first and foremost, of any height. Thanks to this solution the floor area could be multiplied even in a plot of limited size.

Together with German colonists the knowledge of turned wood stave bowls and one-side turned wood bowls arrived in towns east of the River Elbe. Both types of vessels were of standardised shapes and sizes and their high frequency in archaeological finds indicates that they were mass produced.

At the end of the 12<sup>th</sup> and in the 13<sup>th</sup> century major transformations also took place in leatherworking. In the Early Middle Ages rawhide of sheep and goats were commonly used; since the 13<sup>th</sup> century there was a significant increase in the importance of cattle hide. This phenomenon is usually due to transformations in the structure of breeding, where cattle breeding was becoming more and more important. Wide use of cattle hide was also associated with working out relevant tanning technology, thanks to which material of various physical properties was obtained. This meant a wide range of possibilities of their use for the production of a variety of goods.

Late medieval shoemakers used a uniform system of cutting separate parts of footwear, which contributed to a better organisation of work, made efficient or even economical cutting of raw material possible, and even guaranteed the production of standardised goods. A particular sign of transformations taking place at that time was to fit

footwear with various strengthening elements, which raised its quality and durability. Models of shoes unknown before also start to appear, together with new forms of fastening. It might have been already in the 13<sup>th</sup> century that the process of diversification into new trades among tanners and craftsmen producing goods from grain leather commenced. Archaeological sources confirm the activity of such craftsmen as red tanners, white tanners, shoemakers, patten makers, cobblers and bag makers.

Transformations in craft production noted in the 13<sup>th</sup> century also concerned the processing of antlers, bone and horns. Antlers used on a mass scale in earlier periods started to be gradually substituted with bone and horns of cattle. In municipal towns home production became almost totally obsolete. Sets of goods produced in workshops run by craftsmen was subject to a fundamental change. Production of some groups of goods, for example one-side three-layer combs disappeared; the production of two-side three-layer combs, combs with long teeth, rosary beads, layers of handles, cubic dice and pawns for games increased in importance.

In the 11<sup>th</sup> and the 12<sup>th</sup> centuries cross weave fabric 2/1 was very popular in the region of the Baltic Sea. Starting with the 12<sup>th</sup> century this type of fabric started to be superseded by linen weave fabric 1/1. The appearance of this technology was due to the tendency to simplify the method of weaving and to strive to increase the production output and to lower production costs. As early as since the turn of the 13<sup>th</sup> and 14<sup>th</sup> centuries such fabric was the prevailing one among the goods in Lübeck; in the 14<sup>th</sup> century it became prevalent in further towns. It might have been as early as in the 13<sup>th</sup> century that apart from spindle with whorls manual spinning wheels started to be used; they might have arrived in towns located on the Baltic coast together with German settlers. In the 14<sup>th</sup> century wide looms, which made it possible to weave textiles at least two-ell or more wide, became popular.

Stimulation of long-distance trade contributed to major changes in shipbuilding at that time. In the second half of the 12<sup>th</sup> century first cogs appeared in the Baltic. The shifting of German colonisation to the east was not without influence on the development of shipbuilding in the newly settled regions. New types of boats and new technology of fastening shell strakes and its sealing were developed. Characteristic of Slavic shipbuilding on the southern coast of the Baltic was joining strakes with wooden pegs. In the 13<sup>th</sup> century the shipbuilding process underwent major changes: wooden pegs were substituted with iron nails and a clamp method started to be used for sealing the plating of boats.

At the beginning of the High Middle Ages not only branches of production which had their origin in the early Middle Ages were subject to major transformation; new branches of

*Ant. J. van der Meer*

production such as red brass founding or pewtering and those dealing with food production appeared. The appearance of food trades: bakery, brewery and butchery was a phenomenon strictly connected to the development of towns where there was big concentration of population that often had no access to agricultural hinterland which would ensure a direct supply of produce. Apart from food crafts some other specialised forms of activity which could be termed as providing services became popular, such as bath attendants, barbers or chemists.

While considering questions relevant to the organisation of crafts in urban space it needs to be emphasised that it was characteristic of the medieval period to combine the place of residence and the place of work, and it needs to be considered a rule that successive stages of production were done in one workshop, within the space of one estate. The location of craft workshop was the result of a few factors, such as the type of activity carried out, which could depend on the type of trade carried out, co-operation links, the type of activity performed (e.g. work on a commission basis or providing services) as well as financial means which made it possible to settle down in more or less attractive areas of the urban environment. All these factors resulted in location of craft workshops of representatives of just one trade scattered in various parts of a town. A more scattered location was characteristic of trades the activity of which was not dependent on certain environmental factors, cooperation links and in case of which the carrying out of the production process did not require large premises. It was relevant primarily with regard to shoemakers, bag makers, comb makers, producers of rosaries as well as craftsmen who carried out activity in a variety of trades, which would comprise casting elements of decoration and clothes accessories and production of goods from bone (rosary beads, buttons). These craftsmen were also characterised by huge mobility, which meant a relatively short time of use of a production space. Long use of production space was characteristic of specialists who due to the type of applied technology had to use stationary equipment of workshops, such as tanners, blacksmiths, red brass founders, bakers and potters. In case of craftsmen who used fire in the production process it can also be noted that they would locate their workshops in corner plots, which could also be the result of fire safety regulations imposed by town councils.

Concentration of workshops which belonged to craftsmen of the same trade or different specialists using, albeit to a different extent, the same raw materials in a certain area and in the same time period, mainly in the 13<sup>th</sup> and the 14<sup>th</sup> centuries, was observed in some towns. It was especially apparent in case of tanneries in Greifswald, which were located in the so called crafts quarter between Rot- and Weißgerberstraße and in Pasewalk, located in

*Now - Yulke*

northern part of Lower Town, in the area of the Church of the Holy Spirit, in Mühlenstraße as well as in Kołobrzeg located in north-eastern part of the town, in contemporary ul. Giełdowa. All those workshops were located close to watercourses in areas which were scarcely populated, at least at that time. Hence it was the most favourable location for doing the job. In Lübeck, in turn, such a concentration in one area could be observed with regard to the 13<sup>th</sup> century pottery workshops (Kleine Burgstraße 11, Koberg 15-16) and red brass founding (in Breite Straße and in the area of Grosse Gröpelgrube) located in the northern part of the town, where deposits of clay were located. Easy access to the raw material could have been a decisive factor for establishing not only pottery workshops in the area, but also red brass foundries, which used clay to make casting moulds. It was not only natural conditions that contributed to long-term settlement by certain specialist of a given parts of urban space, but also cooperation links. This can be observed in case of blacksmiths in Stralsund, who inhabited the area on the Harbour Outskirts, which worked mostly for shipbuilding and ship handling.

Natural and economic conditions characteristic of each of the towns, organisation of urban space and different value of its individual elements influenced their settlement structure. Available archaeological data complemented with the results of historical research made it possible to analyse said issues with regard to craftsmen on the basis of three towns: Greifswald, Puck and Kołobrzeg. In Greifswald workshops of craftsmen concentrated in south-eastern part of the town, close to Butcher's Gate (Fleischertor) and Mill Gate (Mühlentor) as well as in the area between Fisch- and Rotgerberstraße. Various facilities such as mills, treadmills and granaries were also located in that area. Individual workshops were located in one of the main streets leading from western gate (Vettentor) towards the Market as well as St. Mary's Church. In turn, only few workshops of craftsmen were located in quarters situated to the north of the Market, between Knopf- and Fischstraße. It was an uptown area of the town and was inhabited by the most affluent townsmen. The settlement layout so shaped as early as at the end of the 13<sup>th</sup> century survived also in centuries to come.

A totally different situation was in Puck, where no division into craft production areas was observed. It was carried out in various parts of urban space, depending on individual needs of given specialists. Therefore, scattered location of workshops of craftsmen could have been typical of small towns located in hinterland, whose inhabitants enjoyed roughly the same material status. Such conditions facilitated obtaining a favourable location even in case of trades of low social status or considered cumbersome.

*Ant. Puck*

In Kołobrzeg most workshops excavated so far were located in northern, north-eastern or southern part of the town. Very few workshops were located in the central part of the town. No traces of activity of craftsmen were uncovered in plots surrounding the Market. Said plots, especially since the second half of the 14<sup>th</sup> century when the Town Hall was built, were uptown Kołobrzeg and were inhabited by most affluent townsmen. Of interest is a certain interdependence between the time during which workshops carried out their activity and the place in which they were located. It might be relevant to the spatial development of Kołobrzeg. Initially the town covered only a small moraine hill and apart from permanent buildings there were also quarters located on the river, in floodplains. The time period in which the activity of almost all workshops located in the area covered the original borders of the town was between the middle of the 13<sup>th</sup> century and the middle of the 14<sup>th</sup> century. Starting from the second half of the 14<sup>th</sup> century craft activity concentrated in the area located on the river. Together with the annexation of the floodplains of the River Parsęta, which was initiated about the middle of the 14<sup>th</sup> century, major transformations in the settlement structure of individual parts of the urban space took place. They were primarily visible in the migration of craftsmen from northern and north-eastern parts of town to the area on the river, where also facilities were located: such as mills, a fulling mill and tannery.

Transfer of technology was the phenomenon which accompanied the process of colonisation. This phenomenon contributed to the unification of craft production, major transformations in the repertoire of goods produced as well as production on a mass scale. No less important was easier access to many raw materials, which were subject to local exchange as well as long-distance Hanseatic trade. Of major importance were also new patterns of the organisation of craft production. It was the location of towns on German law that needs to be associated with the establishment of guilds which ensured proper control over the quality of goods and guaranteed proper training of craftsmen. The above factors contributed to the standardization and marketing of craft production, which is displayed in archaeological sources.

Despite a considerable technological standardisation and a similar organisation of production, some distinguishing characteristics can be observed in many towns. They could result from a few factors such as the natural environment and access to closer or further hinterland which determined access to particular raw materials. Depending on the location of the town a bit different raw materials were used for the production of certain goods. This can be seen in case of leatherworking, comb making, production of wooden tableware as well as building crafts. Access to raw materials was also conditional upon trade relations. Dynamic



development of some trades such as red brass founding, blacksmithing, cooperage or amber working could only be possible thanks to the import of goods from southern regions of central Europe, British Isles, Scandinavia as well as south-eastern regions of the Baltic Sea.

Certain contrasts between the towns can be observed not only with regard to the raw materials used, but also with regard to the set of goods which were produced. Manufacturing of wooden vessels can be given as one of the examples here. Observations indicate that two-side turned wood bowls with the so called star-shaped rims were manufactured in Lübeck, Wismar and most probably in Rostock. Production of turned wood bowls with insets was noted only in towns located in Hither Pomerania (west of the River Odra) and eastern Mecklenburg. Containers from birch bark, in turn, were produced in Riga, Tallinn and Tartu.

The origin of settlers was also a factor which influenced the diversity of craft production; pots with spherical bottoms were traditionally produced in towns located in Western Pomerania while flat-bottomed ones in eastern Pomerania and in Prussia. Tableware with spherical bottoms was a regional form characteristic of northern Germany; flat bottomed vessels were a regional product typical of Central Germany. This diversity seems to reflect the origin of the settlers, who disseminated not only the production of grey ware in the colonised territory, but also the repertoire of tableware typical of their place of origin.

Quite a varied repertoire of tableware was produced in Livonian and Estonian towns: it comprised both products typical for all centres which are subject to analysis here as well as those which were characteristic only of one cultural centre. Most traditional features can be observed in leatherworking, glassworking, or in the production of wooden containers and decorations made from non-ferrous metals. These observations seem to indicate that in case of these towns we would deal with two circles of craft production: one would comprise incoming colonists while the other indigenous population. Hence each of these groups must have comprised both producers as well as consumers.

In almost all towns craft production had either local or regional character. A vast majority of goods which were produced was marketed locally, which might have also satisfied the demand of the population who lived in the immediate vicinity of towns. A vast majority of craftsmen in port centres worked for the needs of trade and shipping. Both the production and the sale of goods by craftsmen might have been stimulated to a large extent by regional trade, but also by a long-distance one. For instance, wooden spoons produced on Szczecin were sold in Kołobrzeg and in Pyrzyce. Fragments of turned wood with the so called star-shaped rims which were produced in towns located in Schleswig-Holstein and western Mecklenburg were excavated in archaeological sites in Szczecin. Archaeological sources

*Met - Polen*

complemented with information included in written sources indicate that bronze cauldrons (German "Gräpen") were subject to long-distance trade.

Fairs in Scania were an important place for marketing goods produced by craftsmen; here pottery produced in Greifswald and Stralsund as well as leatherwear produced by shoemakers in Kołobrzeg were sold. Goods produced by shoemakers and pattenmakers in Lübeck were brought to Scania and other regions in Scandinavia. Scandinavia was also the major export destination of bread baked in Lübeck and Rostock. Written sources also mention information about trade in amber rosaries produced in Lübeck and wooden basins produced in Szczecin. Beer was an important export commodity for e.g. Lübeck, Stralsund, Greifswald, Kołobrzeg, Gdańsk and Elbląg. It seems, however, that in towns on the Baltic coast, notwithstanding their developed trade connections, craftsmen production was mainly oriented to satisfy the demand for goods on a local and regional market. All these factors made none of them a major producer of goods that would be exported on a massive scale.

Archaeological sources seem to reflect a major diversity not only with regard to size but also with regard to the diversity of craft production between port towns and towns located in hinterland. Pottery, blacksmithing, tannery and shoemaking as well as production of goods from bone were the type of activities which were most often noted in centres located in hinterland, such as Pyrzyce, Pasewalk, Strasburg, Neubrandenburg and Puck. Agriculture was, in turn, an important part of the economic activity of many of them; it was the basic source of making a living for a vast majority of residents. This specific type of activity was not without an influence not only on the number of crafts, but also on a relatively narrow professional diversity within individual branches of activity. Quite a diverse situation is in case of port towns, whose list of specialist types of production confirmed by archaeological sources is definitely longer; it includes not only crafts which are typical for centres of this type, i.e. shipbuilding, cooperage and beer brewing, but also many other, such as red brass founding, goldsmithing, wood turning, red tanning, white tanning, bag making, comb making, amber working, cloth making, public bathing and glazing.

At the initial stage of the development of municipal towns craft production did not display features of major professionalization, which would manifest itself in the development of new professional specialisations. This is confirmed by uncovered production sites, where remains of the productions of varied repertoire of goods were uncovered; they were produced from a variety of raw materials which were used by different crafts. The present state of research makes it difficult to evaluate the scale of the phenomenon due to insufficient scope

of analytic studies; however, it could be presumed that it was relevant to all towns of interest to us.

The process of developing diversification and specialisation took place at a different pace and intensity in different towns. It might have been conditional upon the population size, level of development and economic condition of a given town. It also needs to be remembered that the establishing of a guild and being granted a statute is in a sense marked by *terminus post quem* of the appearance of particular specialists. A limited number of guild documents which survived down to our times from the 13<sup>th</sup> century and their significance in written sources dating back to the 14<sup>th</sup> and the 15<sup>th</sup> centuries might not only be the result of insufficient preservation of older archives, but it could also reflect to a certain extent the process of intensification of the diversification of new craft specialisations.

Regardless of the number of specialisations, craft in towns on southern coast of the Baltic was characterised by the standardisation of the technology of production, a similar repertoire of produced goods and a similar organisation of the process of production. It resulted from the new cultural patterns being brought to these territories, which was of basic significance in forming and developing of crafts in municipal towns. Despite a considerable standardisation of craft production, a few distinguishing features can be noted in some of the towns subject to these considerations; they concern primarily the type of raw materials used and the repertoire of production. This diversity resulted from the direction of the flow of colonists and their ethnic structure. Natural environment which conditioned access to particular raw materials as well as economic relations with hinterland: either immediate or located further away, and a share in far away trade were not without significance either. All these factors made the character of craft production in towns located on western coast of the Baltic slightly different from centres located in its eastern region.

##### **5. Information on major scientific or artistic activity engaged in at more than one university, scientific institution or cultural institution, especially abroad.**

In 2001 I undertook cooperation with Archaeological Museum in Gdańsk. The aim of the co-operation was to study leather finds excavated from archaeological sites in the medieval port of the Major Town in Gdańsk. In 2007 I co-operated with Archaeological in Historical Museum in Stargard. The result of this activity was a study of the collection of leather finds excavated at the archaeological site of the Order of Hermits of Saint Augustine in Stargard. The results of both studies were published in scientific archaeological journals.

In 2009 I undertook co-operation with the Historical Museum of the City of Kraków. Working within the framework of the project "Underground Market" I prepared leather artefacts for an exhibition showing the results of archaeological excavations in Kraków Old Market which was prepared by said Museum.

#### **6. Information on major achievements in the field of teaching, organisation and popularizing science or art**

Apart from research I also undertake various activities which aim at popularising its results. I gave lectures within the framework of European Heritage Days as well as talks which were organised by the University of the Third Age, Polish Tourist and Sightseeing Society and Polish Arms Museum in Kołobrzeg, where I presented results of archaeological excavations at archaeological sites in Kołobrzeg and selected issues relevant to material culture of a medieval town. Moreover, I presented the results of research in local and regional media (the press, radio and television) in the course of field work.

In 2007 I organised a conference *In Gremio – in Praxi. Studies on Medieval Leather Production* together with Anna B. Kowalska which was devoted to interdisciplinary studies on medieval leatherworking in Poland.

In 2017 I gave a lecture "Methods of studies on leather finds" at Inter-University Archaeological Workshops in Gdańsk.

In 2019 I gave a lecture "Craft Production in Late Medieval Baltic Towns in the Light of Archaeological Sources" for doctoral students of the Institute of Archaeology and Ethnology of Polish Academy of Sciences in Warsaw.

#### **7. Apart from information provided in 1-6 above the applicant may submit other information relevant to his or her scientific career which in his or her opinion is important.**

As a result of qualification procedure I was awarded an individual grant to study primary sources for studies on crafts in late medieval towns on the Baltic coast by the Management of the Foundation for Polish Science by virtue of resolution 146/2011 passed on 24 August 2011 and resolution 50/2012 passed on 4 April 2012. The grant was awarded within the framework KWRENDĄ – edition 2011.

*Beata Górska - Myśliwa*