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Both on Water and on Land: The Structure of River Ports and Harbours in the Grand Duchy of Lithuania in the sixteenth–eighteenth centuries

Zarówno na wodzie, jak i na lądzie: struktura portów rzecznych i przystani
w Wielkim Księstwie Litewskim w XVI–XVIII wieku

Abstract: Based on historical sources, historiography, and archaeological evidence, this article examines the structure of river ports and harbours in the Grand Duchy of Lithuania between the 16th and 18th centuries. Sources referred to riverside settlements as „port” (in Polish and Ruthenian) and „przystań” (or „pristan” in Ruthenian). A “port” was usually located in larger urban centres, while smaller towns and landed estates had “harbours.” The main distinction was based on quantitative and qualitative differences, with ports featuring wharves, warehouses, and shipyards, while harbours relied on natural sites for loading and unloading. The conducted study shows how people used the natural conditions for navigation.

Key words: river ports, Grand Duchy of Lithuania, history of connection, early modern period, inland navigation, historical geography

Abstrakt: W niniejszym artykule, na podstawie źródeł historycznych, historiografii oraz dowodów archeologicznych, przeanalizowano strukturę portów rzecznych i przystani w Wielkim Księstwie Litewskim w XVI–XVIII wieku. W tekstach z epoki osady nadrzeczne określano mianem „portu” (w języku polskim i ruskim) oraz „przystani” (po rusku: „pristań”). „Port” zwykle znajdował się w większych ośrodkach miejskich, podczas gdy mniejsze miasta i majątki ziemskie miały „przystanie”. Główna różnica miała charakter ilościowy i jakościowy: porty dysponowały nabrzeżami, magazynami i stoczniami, podczas gdy przystanie powstawały w naturalnych miejscach, które ludzie wykorzystywali do załadunku i wyładunku towarów. Z przeprowadzonych badań wynika, w jaki sposób ludzie wykorzystywali naturalne warunki do żeglugi.

Słowa kluczowe: porty rzeczne, Wielkie Księstwo Litewskie, historia połączeń, nowożytność, żegluga śródlądowa, geografia historyczna

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I. Introduction. II. The terms “port” and “harbour” in the historical sources of the Grand Duchy of Lithuania in the 16th–18th centuries. III. Natural shorelines and man-made wharves. IV. Buildings in river ports and harbours. V. Conclusions.

I. Introduction

Ports and harbours played an integral role in the life of the Grand Duchy of Lithuania (hereinafter referred to as GDL) during the 16th–18th centuries. These elements were woven into the fabric of river cities, towns, and estates in the region. In leagal historical sources of this period, the navigable rivers of the GDL are referred to as “flumina navigabilia” in Latin, “rzeka portowa” in Polish, and “portovaja reka” in Ruthenian.¹ According to Samuel Bogumił Linde, the Polish word “portowy” is interpreted as having a port (“port maiaćy”), and the word “portowny” is interpreted as related to or connected with the port (“od portu, do portu należaćy”).² Thus, one of the criteria for a river to be legally considered navigable was the presence of harbours and piers, indicating active trade along the river (Fig. 1).³

To gain a deeper understanding of how local and international communication and trade unfolded through waterways, it is essential to unravel the appearance, structure, and blend of natural and man-made components of river ports and harbours. Conducting this research entails a comprehensive analysis of various types of written sources, archaeological data, and an extensive examination of the existing historiography.

The article’s primary objective is to investigate the river ports of GDL during the 16th–18th centuries based on historical sources and historiographical data, with a specific focus on their structure.⁴ To achieve this goal, we have outlined the following tasks: 1) to determine the usage of the terms “port” and “harbour” in various languages within historical sources of GDL; 2) to examine the utilization of natural riverbanks and the construction methods employed for wharves in ports and harbours; 3) to explore the various buildings and equipment present within these ports and harbours.

In historiography, significant attention has been directed towards cities in the GDL situated along navigable rivers. Exploring the history of these cities invariably delves into their roles as river ports. Notably, it’s essential to mention the research conducted by Zigmantas Kiaupa and Liudas Glemža on the history of Kaunas, which served as the most important port on the Nemunas River.⁵ The port of Vilnius, located on the Neris River in the suburb of Lukiškės, has also been a subject of considerable scholarly focus.⁶ Historians have similarly dedicated their

¹ Bedulskis R. 2023, p. 12–15.

² Linde S.B. 1811, p. 929.

³ The mentioned rivers belonged to four basins flowing in different directions. The Nemunas and its tributaries, including the Neris (and Šventoji), Nevėžis, and Shchara, transported goods to the port of Königsberg. The Daugava and its tributaries Toropa, Mezha (with its tributary Obsha), and Ula, provided access to the port of Riga. The rivers of the Vistula basin, such as the Bug (and its tributary Mukhavets) and the Narew, were used for trade with the region’s main port, Gdańsk. The largest river of the GDL, the Dnieper, and its tributaries Berezina, Pripjat (with the tributaries Horyn, Yaselda, Lan, Pina, Sluch, and Styr), and Sozh, were used primarily for internal trade and communication due to unfavorable political conditions. Thus, the main factors for the creation of ports and piers were a convenient geographical location and the ability to ship goods to the ports of the Baltic Sea.

⁴ This article does not attempt to provide an exhaustive description of all river ports and harbours of the GDL, as such an endeavor would necessitate extensive research.

⁵ Kiaupa Z. 2010b; Kiaupa Z., Glemža L. 2023, *etc.*

⁶ Žilėnas V. 1994, *etc.*; Jogėla V. et al. 2008.

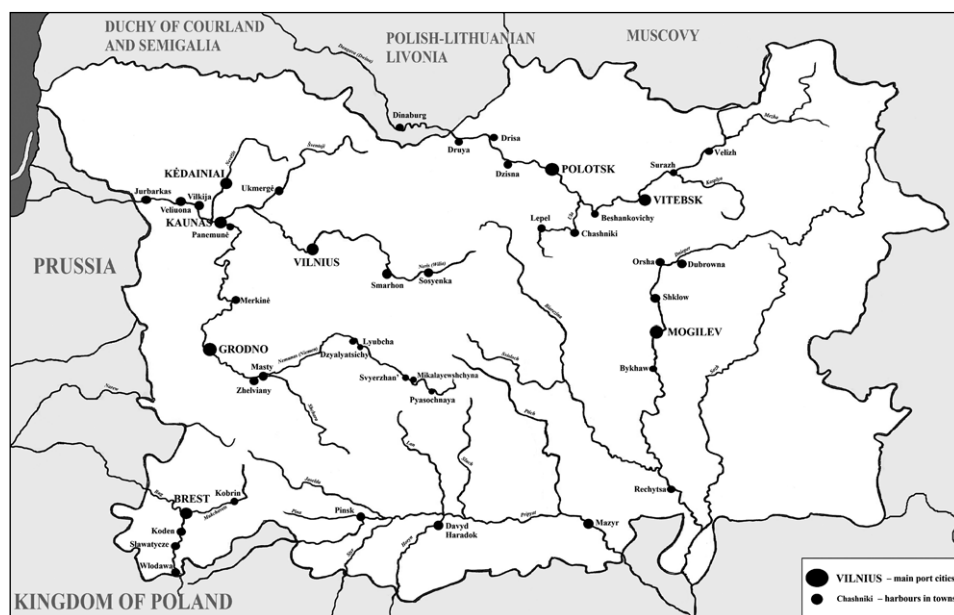


Fig. 1. Map of the Grand Duchy of Lithuania with selected ports and harbours marked.
Prepared by Rimantas Bedulskis

attention to Kėdainiai, situated along the Nevėžis River.⁷ Moreover, within the historiography dedicated to the city of Grodno, valuable information has emerged concerning its former port, complete with warehouses within the city.⁸ With regard to the trade challenges encountered by merchants from towns situated near the Dnieper, it is essential to reference Maria Barbara Topolska's seminal research on the commerce of Shklov and other towns in the eastern regions of the Grand Duchy of Lithuania during the 17th and 18th centuries.⁹ Additionally, the trade activities of the citizens of Mogilev have garnered considerable scholarly attention.¹⁰

Ignacy Tadeusz Baranowski contrasts the economic development of the Daugava, Nemunas, and Vistula basins with the Dnieper basin, noting how political conditions hindered the latter.¹¹ In the 16th–18th centuries, the lower Dnieper was controlled by the Ottomans, and there was no seaport on the Black Sea where merchants of the Grand Duchy of Lithuania could ship goods. Despite the Dnieper's natural advantages, its settlements, such as Dubrowna, Orsha, Shklov, Mogilev, and Rechytsa, lacked major ports and harbours. Merchants relied on overland routes to harbors on the Daugava and its tributary Ula (Beshankovichy, Vitebsk, Chashniki, Lepel), the Nemunas and Neris (Pyasochynaya, Dzyalyatsichy, Vilnius), and by the Pripyat River to Pinsk and Brest. Transport was labor-intensive but feasible for large-scale trade.¹² This geopolitical barrier forced townspeople and nobles to overcome adverse economic conditions by transporting goods to selected harbors via overland routes. These efforts underscore the economic

⁷ Samalavičius S. 1962; Ragauskienė R. et al. 2022.

⁸ Borowik P. 2000; Borowik P. 2005; Gordziejew J. 2002; Gordziejew J. 2003.

⁹ Topolska M.B. 1967; Topolska M.B. 1969.

¹⁰ Lowmiański H. 1938; Meleško V. 1988; Kornacki P. 2003.

¹¹ Baranowski I.T. 1916, p. 281.

¹² Topolska M.B. 1969, pp. 125–130.

significance and enduring appeal of navigable rivers. Historians often turn their attention to ports and harbours when delving into the economic activities of the nobility. It's noteworthy that, thus far, Polish river ports have garnered more extensive scholarly examination. Notable scholars like Józef Burszta,¹³ Adam Homecki,¹⁴ Szymon Kazusek,¹⁵ Nina Miks-Rudkowska,¹⁶ Ryszard Orłowski,¹⁷ and Alina Sztachelska-Kokoczek,¹⁸ among others, have produced significant works that investigate trade organization within the Branicki, Lubomirski, and Zamoyski estates. Similarly, Lithuanian historiography boasts studies that parallel this focus. Darius Sakalauskas and Aivars Poška's article exploring the organization of trade at the Nemunas ports affiliated with the Radziwiłł and Sapieha families is particularly noteworthy.¹⁹

The history of smaller towns, whether privately or state-owned, within the GDL, serving as ports and harbours, has been thoroughly examined by Stanisław Alexandrowicz.²⁰ Linas Kvizikevičius has undertaken the historical development of towns by the river Nemunas, adding to our understanding of this aspect.²¹ Furthermore, Belarusian towns have received special attention from researchers, with the works of Jurij Bochan²² and Ina Sorkina²³ being of notable significance. These studies, while not primarily focused on ports and harbours, contain valuable information regarding these aspects.

Within historiography, discussions about ports often encompass a broader perspective, yet there are works that delve into individual structural elements of ports and harbours. Notably, goods warehouses²⁴ and shipyards²⁵ have received particular attention in scholarly research.

Summarizing the discussed historiography, it can be stated that the river ports and harbours of the GDL are often included in historical research only as a secondary spot of other topics. Existing historiography cannot yet answer all the questions raised by this article, so it is inevitable to rely on the data of written historical sources. In order to achieve the set goals and tasks, various types of historical sources are utilized, shedding light on different aspects of the history of river ports and harbours, thus aiding in a better understanding of their structure. The research relies on archival²⁶ and published sources. From documents found in the GDL Chancellery — Lithuanian Metrics,²⁷ we glean information about river ports dating back to the early 16th century within the territory of the GDL. However, these sources lack detailed descriptions of their structure or appearance.

Regarding river ports in cities, informative sources include the acts of city councils.²⁸ The 16th–18th century act books of the city of Kaunas provide many useful materials.²⁹ The trade in

¹³ Burszta J. 1955.

¹⁴ Homecki A. 1970.

¹⁵ Kazusek S. 2022.

¹⁶ Miks-Rudkowska N. 1978.

¹⁷ Orłowski R. 1956.

¹⁸ Sztachelska-Kokoczek A. 2006.

¹⁹ Sakalauskas D., Poška A. 2020.

²⁰ Alexandrowicz S. 2011.

²¹ Kvizikevičius L. 2004.

²² Bohan Ū. 2018.

²³ Sorkina I. 2010.

²⁴ Dumnicki J. 1987; Samalavičius S. 2011a

²⁵ Kiaupa Z. 2010a; Ossowski W. 2010.

²⁶ The article draws on historical sources from the Central Archives of Historical Records in Warsaw, the Lithuanian State Historical Archives, and the Manuscripts Department of the Vilnius University Library.

²⁷ Metrika. 2001; Metrika. 2021; Metrika. 2024.

²⁸ Sobranie. 1843.

²⁹ The article refers to *Book of Acts of Kaunas Wójt from 1552–1555* — see LVIA, SA, no. 13842; *Book of Acts of Kaunas Wójt from 1580–1583* — see VUB, RS, F7; *Book of Acts of Kaunas Wójt from 1603–1628* — see VUB, RS, F7. Published sources: Aktavaja. 2006; Knyga. 2011.

Vilnius during the 17th–18th centuries is documented in the books of the Vilnius City Council.³⁰ The published acts of the city councils of Kėdainiai and Merkinė offer significant information about the everyday life of smaller Magdeburg cities within the GDL.³¹ Additionally, the published court books and documents of the magistrates of Polotsk, Vitebsk, and Mogilev³² reveal the role of these cities in trade along rivers such as the Daugava and Dnieper within the GDL.

A separate category comprises exclusive economic documents — manor inventories. This article draws upon inventories from the 16th to 18th centuries.³³ Within these records, detailed information can be found regarding the obligations of peasants to transport goods to ports, as well as comprehensive descriptions of port and harbour structures, including warehouses.³⁴

The river trade of large landowners during the 17th–18th centuries is best documented through trade income and expenditure registers.³⁵ These documents delineate the principal ports and harbours of the nobility, underscore the pivotal centers of river trade, and detail the associated infrastructure. Despite their economic nature—recording expenses and earned income—these sources allow for a comprehensive reconstruction of the entire trade organization and realization process. Account books also provide insights into river transport during that era, including information on ship construction, technical specifications, and pricing. They not only describe geographical locations but also provide details about activities of riverside communities.

Information from historical sources has been corroborated and augmented by archaeological research. These investigations, conducted in Kaunas,³⁶ Kėdainiai,³⁷ Merkinė,³⁸ Vilnius,³⁹ and Vitebsk,⁴⁰ revealed wooden bank structures, both submerged underground and in water, utilized to fortify the riverbanks. The article also relies on the works of Western European archaeologists, which examine the ports and harbours of the Danube, Main, Rhine, and other rivers of the Middle Ages and Early Modern times, including the buildings and structures within them.⁴¹ The authors not only discuss the structures that were present, but also attempt to explain the very concept of a river port.

The research subject of the article facilitates the selection of an appropriate methodology. This investigation delves into the domain of historical geography, concentrating on the 16th to 18th centuries, with a specific focus on exploring the factors influencing the establishment of river ports and harbours within the GDL, as well as their structural characteristics. Methodological selection is guided by the research subject, historiographical considerations, and the accessibility of historical sources. Methodologically, the research entails a comprehensive analysis of diverse sources, including written records, cartographic depictions, iconographic representations, and archaeological research reports. Accordingly, the methodological approach

³⁰ Knyga. 2011.

³¹ Lietuvos. 2002; Lietuvos. 2007.

³² Księga. 2020; Istoriko. 1871–1906; Polocko. 1911–1916.

³³ The inventory of Merkinė parish, 1693–1695 — LVIA, F. 1135, descr. 4, no. 474; the inventory of Grodno economy, 1789 — LVIA, F. 11, descr. 1, no. 307; Derewna estates inventory, 1646 — AGAD, AR XXV, no. 736; Inventory of Mikołajewszczyzna, 1628 — AGAD, AR XXV, no. 2666, etc. See: Piscovaja. 1882; Inventoriai. 1962; Zawadzki J. 2002.

³⁴ VUB, RS, F4(A1404)39687.

³⁵ See e.g., AGAD, AR XX; VUB, RS, F4(A1505)12071; VUB, RS, F4(A1427)12072; VUB RS, F5, F-33034.

³⁶ Bertašius M. 2013.

³⁷ Juchnevičius A. 1998.

³⁸ Baubonis Z. 2000; Baubonis Z. et al. 2001.

³⁹ Baubonis Z., Kraniauskas R. 2001.

⁴⁰ Tkačev M., Koledinskij L. 1983.

⁴¹ Christophersen A. 2015; Werther L., Kröger L. 2017; Springmann M-J. 2016; Wollenberg D., Niessen I. 2019.

prioritizes meticulous scrutiny of sources to fulfill the research objectives. Empirical insights extracted from historical records are methodically organized and subjected to interpretative analysis. Furthermore, a comparative analytical framework is employed to discern the relative significance of distinct river ports and harbours within the context of the GDL.

The selection of the chronological boundaries for this study was deliberate. The 16th century marks a period of significant involvement by the GDL in international trade. During this time, urbanization in the region experienced notable advancements, leading to the establishment of ports and harbours, as well as improvements in the infrastructure of trade routes. Economically, the 16th century saw intensified land management processes within the country, resulting in increased participation of nobles and the nobility in international trade. The choice to conclude the chronology in 1795, with the collapse of the GDL.

This broad timespan is supported by the findings of J. Burszta, who examined shipping techniques on the Vistula and San rivers. He concluded that during the 16th–18th centuries, Poland as well as the GDL were characterized by a feudalistic approach to trade along navigable rivers, resulting in the exclusion of townspeople from trade and the disappearance of shipyards in urban centers. This feudal nature hindered greater specialization and technological advancements in shipping practices, thus perpetuating a lack of significant changes in shipping technology until the mid-19th century.⁴² Furthermore, this perspective aligns with the “Long Middle Ages” theory proposed by French historian Jacques Le Goff. According to this theory, society remained largely unchanged technologically and communicatively from the Early Middle Ages until the early 19th century.⁴³

II. The terms “port” and “harbour” in the historical sources of the Grand Duchy of Lithuania in the 16th–18th centuries

Broadly speaking, during the Middle Ages and the Early Modern period, nearly every point where a ship commenced or concluded a river journey could be termed a port. As noted by archaeologist Axel Christophersen, the concept of a port during this period encompassed a wide spectrum, ranging from entirely natural locations with favorable conditions for ships to dock and load/unload cargo to more complex, man-made structures and sites adapted for these purposes.⁴⁴

It should be noted that in historical sources of the GDL from the 16th century, settlements are seldom explicitly labeled as ports or harbours. Typically, their existence can only be inferred, as the records often refer merely to the shipping of goods from one area to another. However, in the 17th and 18th centuries, riverside settlements are mentioned in two ways: in Polish as “port” (Ruthenian “port”) or “przystań” (Ruthenian “pristan”). To comprehend the nature of these river ports in the GDL during this era, it is crucial to explore the meanings and distinctions of these terms at the time and discern the contexts in which each designation was employed.

According to S.B. Linde, the term “port”, used in Polish and Ruthenian, originates from the Latin word “portus”, which serves as the equivalent of the term “przystań” (“pristan”) in Slavic languages.⁴⁵ In 1642, in the three-language dictionary published by Konstantinas Sirvydas, the Latin word “portus” and the Polish word “port” were translated into Lithuanian as “prieplauka”.⁴⁶ In the Lithuanian dictionary, this word is described as “a place for ships to dock at the shore”,⁴⁷ so the definition of harbour would be more suitable for it.

⁴² Burszta J. 1955, p. 777.

⁴³ Le Goff J. 2004.

⁴⁴ Christophersen A. 2015, p. 125.

⁴⁵ Linde S.B. 1811, p. 929.

⁴⁶ Pirmasis. 1979, p. 328.

⁴⁷ Dictionary of the Lithuanian Language — <http://www.lkz.lt/?zodis=prieplauka&id=22256640000> (access August 28, 2025).

The Great Polish Dictionary, compiled by Witold Doroszewski, defines “port” as a stretch of coast, a deepened and wave-protected coastal area for the mooring of ships, equipped with special devices for loading, unloading, and repairing ships.⁴⁸ In contrast, “przystań” is described as a small port or a naturally formed place on the riverbank where ships can dock.⁴⁹ In technical literature, an inland water port is defined as a structure constructed at the junction of land and inland waters. It is equipped with facilities and structures specifically organized for the transportation and transshipment of passengers and cargo.⁵⁰

These descriptions share a common feature: “port” refers to a natural riverbank adapted by people, with wharves, buildings, and other human improvements, while “przystań” (and “pristan”) is simply a convenient place, often in its natural state, along the river or shore where ships can stop and receive services without significant human modifications. The “port” typically referred to the larger towns of the GDL, situated along the main navigable rivers. For instance, in 1633, Kėdainiai was identified as a “port” (“miasto portowe”).⁵¹ In 1653 the constitution of the Sejm mentions the ports on the Nemunas, Neris and other rivers: “miasta nasze portowe, tak nad Niemnem, iako nad Wilią będące y inne”.⁵² In the inventory of Diktariškis folwark of 1670, among other obligations, peasants were obliged to travel three times a year to the nearest ports of Kaunas or Veliuona: “do Kowna albo do Wielony, jako bliższych portow”.⁵³ In some cases, the term „port” refers to a specific place of the town. For example, in the 1561 inventory of the Grodno economy, there is mention of a port by the Nemunas situated near the king’s castle on the left side of the road leading from the market.⁵⁴

In smaller towns and private estates, ships would often make stops at harbours, known as “przystanie”. For example, on November 20, 1559, the Polotsk merchant Sidor Esipowicz complained that the burgomaster of Vilnius, Pawel Petrowicz, had promised to allow his goods to be transported by strugs at the Kasplia harbour (“na Kaspli u prystoini”; “gde pristan’ strugom byla”), but the goods were not delivered on time.⁵⁵ In 1685, cargo-laden strugs (type of ships) arrived on the Daugava River, docking at the Beshankovichy harbour (“w przystani Bieszenkowskiej”).⁵⁶ Similarly, in 1777, goods were shipped from harbours along the Nemunas River, which belonged to the Radziwiłł family, including Svyerzhan’ (“z przystani Swierzanskiej”) and Dzyalyatsichy (“z przystani Delatyczskiej”).⁵⁷ In the 16th–18th centuries, the term “pal” was used to refer to the harbours on the Vistula River and its tributaries in the territory of the GDL as well as the Bug and Narew rivers.⁵⁸ According to Bronisław Cmela, this name originates from the practice of driving numerous oak stakes into the riverbank at the chosen location for the harbour, used for anchoring ships.⁵⁹

In some historical sources river harbours are occasionally referred to as “rum”. For example, in 1773, Sapieha ships wintered in Masty and Zhelviany “w Rumie Mostowskim y Zelwianskim”.⁶⁰ Otto Hedemann explains the word “rum” as “a place by the river where goods

⁴⁸ Słownik. 1958–1969 — <https://sjp.pwn.pl/doroszewski/port;5478080.html> (access August 28, 2025).

⁴⁹ Słownik. 1958–1969 — <https://sjp.pwn.pl/doroszewski/przystan;5487151.html> (access August 28, 2025).

⁵⁰ Tołkacz L. 2010, p. 60.

⁵¹ VUB, RS, F4(A208)16419, p. 2v.

⁵² Volumina. 1860, p. 191 (415).

⁵³ Inventoriai. 1962, p. 280.

⁵⁴ Piscovaja. 1882, p. 45, 57, 62, 64.

⁵⁵ Metrika. 2021, pp. 26–27.

⁵⁶ AGAD, AR XX, no. 8, l. 17.

⁵⁷ AGAD, AR XX, no. 77, l. 11.

⁵⁸ “Pal — punkt, od którego statki odpływają lub do którego dążą, przystań”: Ślaski B. 1930, p. 202.

⁵⁹ Cmela B. 1977, p. 77.

⁶⁰ VUB, RS, F4-(A1505)12071, p. 5.

were stored”.⁶¹ According to the author, a different term, “binduga”, was used in the Kingdom of Poland to denote the place where logs were stored and later bundled into rafts.⁶²

Within historiography, efforts have been made to explain the meanings of the terms “port” and “przystań” as used in historical sources and the differences between them. The primary criteria that set ports apart from harbours encompassed both quantitative (related to trade volume) and qualitative (relating to structures and facilities) differences. Ports typically were located in major cities, within an urban landscape, while harbours were situated in smaller towns or on private estates, within an agrarian landscape. An additional significant criterion relates to the frequency and duration of use of the port or harbour. According to A. Homecki, ports can be categorized into two types: main ports (“pale główne albo stałe”) and temporary ports (“pale czasowe”), which were operational for shorter periods.⁶³ A. Sztachelska-Kokoczka distinguishes the terms “port” and “pal” based on their importance, where “port” is considered permanent, and “pal” is viewed as temporary.⁶⁴ Some harbours were used seasonally, with certain harbours being utilized only once a year, specifically during the spring floods when water levels were at their highest.

As Doris Wollenberg and Iris Niessen point out, when it comes to early ports and harbours, one cannot rely on modern definitions based solely on the characterization of their constructive elements. It is necessary to broaden the perspective on the functions of river ports, including docking, unloading, loading, and analyzing the natural topography and human-made infrastructure.⁶⁵

III. Natural shorelines and man-made wharves

The establishment and growth of river ports and harbours were largely influenced by the presence of favorable natural and geographical features, economic conditions, urban structure, etc.⁶⁶ Crucial to this development was the requirement for the river to possess advantageous locations for ships to dock, such as confluences of rivers, bays, and low, dry banks. L. Kvizikevičius emphasized the importance of these natural factors in the formation of river ports and harbours. Notably, towns like Vilkija, Veliuona, and Jurbarkas, which were situated near the Nemunas River, enjoyed the natural conditions conducive to harbour creation during the 16th century. Conversely, the town of Skirsnemunė did not have easy access to the Nemunas coast, which hindered ships from mooring there.⁶⁷

Harbours could only be a convenient places on the river with a sandy shore, suitable for docking ships, and loading, or unloading goods. For example, on June 9, 1546, Duke Fiodor Sanguszko, the marshal of the Volhynia, reached an agreement with the Jewish merchant from Brest, Hoszka Koźczic, regarding the delivery of 100 lasts of ashes. F. Sanguszko pledged to deliver the ashes on the bank of the Bug in Włodawa (“na bereze Buga, u Volodave”), without specifying the presence of warehouses or any other structures.⁶⁸ The continuity of this practice is further evidenced by other sources. For instance, the 1685 document notes that in Beshankovichy, goods were brought to the Daugava river’s shore (“na brzegu”), from where they were subsequently loaded onto four ships.⁶⁹ At first glance, these harbours looked primitive, but they were perfectly suited to the fluctuating water levels and the banks that changed every year due to the tides. Ships could use these harbours in almost any conditions.⁷⁰

⁶¹ “Rum — miejsce na brzegu rzeki, gdzie gromadzono towary leśne”: Hedemann O. 1934, p. 60.

⁶² Hedemann O. 1934, p. 60.

⁶³ Homecki A. 1970, p. 41.

⁶⁴ Sztachelska-Kokoczka A. 2006, pp. 135–138.

⁶⁵ Wollenberg D., Niessen I. 2019, p. 414.

⁶⁶ Rossiaud J. 2021, p. 29.

⁶⁷ Kvizikevičius L. 2004, p. 97.

⁶⁸ Archiwum. 1890, p. 464–465.

⁶⁹ AGAD, AR XX, no. 8, p. 17.

⁷⁰ Werther L., Kröger L. 2017, pp. 80–81.



Fig. 2. Fragment of Kaunas panoramic view around 1600, engraving by Tomasz Makowski.

Source: Paknys M. 2009, p. 31

In city harbors, ships were frequently moored directly on the riverbanks in front of the houses and lots owned by townspeople, as evidenced by historical sources. For instance, in 1568, Jan Mackiewicz promised to deliver 50 last of grain to the Tykocin elder, Jan Szymkowicz, in Ustilug, on the Bug River, where goods from the warehouse could easily be transferred to the *komiegas* (*komiega*, type of ship; “na bereg reki Buga na pevnom mestcy, to est v Ustiluze, tam, gde by mog prosto z spihlera na komjagi vsypati na splav do Kgdanska”).⁷¹ Similarly, in 1571, in the case between Michail Zaranka Gorbowski and Tobiasz Bogdanowicz, a Jewish merchant from Brest, regarding the non-delivery of a *szkuta* for transporting goods to Gdańsk, a specific location was indicated where the *szkuta* with rye should have been delivered: in the city of Brest, on the Bug River near Piasocka Street, where Tobiasz’s house was located (“u meste Berestejskom na rece Bugu pri ul. Pesockoj”).⁷² On March 3, 1609, a privilege granted to the citizens of Grodno specified that those with houses and plots along the river should not be obstructed from accessing the Nemunas River (“nie kaze tez bronic przystępu wicinom na brzeg niemenski tym, ktorzy domy y place swe nad Niemnem maią targowe”).⁷³ Finally, in 1676, in a complaint filed by Jan Jozafat Olechnowicz, representing Polock’s *podkomorzy* Justynian Niemirowicz-Szczytt, accusing Aleksandr Szykucki, a citizen of Polock, of misappropriating a strug, A. Szykucki stated that the strug was brought near his house on the bank of the Daugava (“przyprawdził pod dom mój nad Dźwina rzeką poblizu stojący”).⁷⁴

However, wharves were installed in the most important ports such as Grodno, Kaunas, Kėdainiai, Merkinė, Mogilev, Svyerzhan’, Vilnius, Vitebsk, etc. First of all, they protected the river bank from erosion. The wharves were adapted for loading cargo from ships and unloading from nearby warehouses.

We possess comprehensive knowledge regarding the wharves situated within the city of Kaunas. Historical sources mention that in the 16th–17th centuries, the bank of the Nemunas near the city was strengthened by installing a wharf (“Bollwerk”⁷⁵). The shore was reinforced with driven piles and transverse thick planks anchored between them. This can also be seen in an engraving of Kaunas from around 1600 by Tomasz Makowski, depicting a log wharf extending along the entire coast of the city (Fig. 2).⁷⁶ This wharf was repaired in 1665 when the Grand Duke of Lithuania, Jan Kazimierz Vasa, allowed the city to produce wood for ten years and

⁷¹ Metrika. 2001, pp. 112–114.

⁷² Metrika. 2024, pp. 39–48.

⁷³ Galubovič V. 2011, pp. 265–266.

⁷⁴ Księga. 2020, pp. 421–428.

⁷⁵ “Nabrzeże — brzeg rzeki lub kanału, zwłaszcza uregulowany i oskałowany, bulwark”: Ślaski B. 1930, p. 189.

⁷⁶ Kiaupa Z. 2010b, p. 95.

transport the products to Prussia duty-free to strengthen the wharves of Nemunas and Neris, which were damaged by floods and city fires.⁷⁷ Wharves in Kaunas are also mentioned in later sources. For example, in 1751, to protect the banks of the Nemunas from erosion, bank reinforcements made of oak logs were built.⁷⁸ After a few decades, the wharf needed to be repaired again; in 1777, due to the damage caused by the river's current, the Kaunas magistrate emphasized the need for repairing the wharves ("burwałki") on both river sides as soon as possible.⁷⁹ In 1786, Stanisław August Poniatowski established the Kaunas Good Order Commission ("Komisja Dobrego Porządku"), which, among other tasks, was responsible for maintaining river wharves.⁸⁰ This demonstrates the significant attention paid to wharfside maintenance to ensure safe navigation.

River banks reinforced with wharves are also mentioned in private towns. An interesting account from the mid-18th century, from the advice of Piotr Topolewski, the "dyspozytor" of Karol Stanisław Radziwiłł's wicinas (type of ship), to the townspeople of Svyerzhan', informs us that in 1752 a wharf (known as "burwałek swierzanski") was being built or repaired at the harbour. For the construction of the wharf, thick planks from old wicinas, no longer suitable for shipping were used.⁸¹ The following year (1753), the work continued, and permission was once again requested to use the wood of the old wicinas for the construction of the wharf.⁸² In 1769, it is mentioned that this wharf was in poor condition and in need of repair. There was fear that the river might flood the warehouses if the wharf collapsed: "Burwałek zewszystkim opadly, stare wiciny rozebrawszy dylami oparkanić wyzey wysypać koniecznie potrzeba, bo bron Boże kiedy gwałtowney wszystkie spichrze zatopić może po miejscach nizkich stojące".⁸³

The construction of wharves incurred significant expenses, leading to the implementation of wharfage fees, referred to as "pobrzeżne" or "brzegowe", for the utilization of harbour facilities. For instance, in a decree issued by Sigismundus III on June 18, 1630, granting privileges to the city of Vilnius, it was stipulated that a shore fee of 2 zloty was levied on every ship moored at the wharf.⁸⁴

Historical knowledge about the reinforcement of river banks is complemented by the remains of wharf structures discovered during archaeological research. Valuable research findings come from Kėdainiai, where in 1989, during archaeological excavations, remains of a long wooden wharf dating from the late 16th century to the 18th century were unearthed. The banks of Nevėžis were strengthened with three rows of oak piles with a diameter of 28–30 cm, spaced 140 cm apart. On top of the piles, 3–5 cm thick boards were affixed using forged nails,⁸⁵ creating what is known as a "rostwerk". Similar remains of wharves from the 17th and 18th centuries were also discovered in Merkinė in 2000. A structure comprised of oak piles 20–30 cm in diameter, driven into the riverbed, with stones 15–20 cm in diameter placed between them, was found just downstream from the confluence of the Nemunas and Merkys.⁸⁶ The banks were strengthened using wooden piles, hammered into the riverbed in rows, and reinforced with stones. Planks were laid on the piles.

⁷⁷ Macianskis J. 1998, p. 196.

⁷⁸ VUB, RS, F7 — *Acts of Kaunas City Council 1683–1773*, p. 387a; Kiaupa Z., Glemža L. 2023, p. 110.

⁷⁹ LVIA, SA, no. 19587, p. 452a; Kiaupa Z., Glemža L. 2023, p. 110.

⁸⁰ Glemža L. 2000, pp. 211–213.

⁸¹ AGAD, AR V, no. 16339, p. 9.

⁸² AGAD, AR V, no. 16339, p. 16.

⁸³ AGAD, AR XX, no. 104, p. 30.

⁸⁴ Zbiór. 1788, pp. 191–193.

⁸⁵ Juchnevičius A. 1998.

⁸⁶ Baubonis Z. et al. 2001, pp. 231–233.

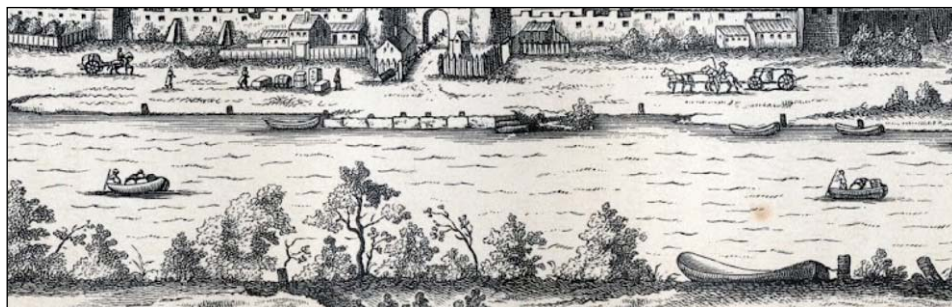


Fig. 3. Fragment of the Mogilev panorama (“Prospect der Stadt Mohilow”) with the harbor in the eighteenth century. Source: Horoda. 2009, p. 212

Devices for securely mooring ships (stakes or knechts) were constructed on the shore or near the wharf. Such stakes driven into the shore are depicted in a 1720 carving of the city of Mogilev (Fig. 3). Sometimes, wooden barriers were specially installed for this purpose — groins that allowed ships to winter more safely.⁸⁷ Occasionally, disputes arose over the convenient wintering spots for ships. For instance, in 1627, Kaunas bencher (*lawnik*) Marcin Slawecki complained to Kaunas wójt that Henrik Bantke’s wicina was left in the river without being relocated to Alekso-tas. During a flood, it was carried down the river and damaged part of the Nemunas wharf.⁸⁸ Another wharf was situated along the Neris River in the moat of Kaunas Castle. We have information about this from a legal case. In 1668, the burgomaster of Vilnius and merchant Jan Gilewski left his two wicinas for wintering within the Kaunas Castle territory, securing them to his driven-in poles. However, when Vilnius magistrate councilors Mikołaj Brzozowski and Szymon Ostrowski arrived, they relocated the mentioned vessels to another location and attached their ships to Jan Gilewski poles, even though he had paid for wintering his vessels. J. Gilewskis’ complaint from 1669 reveals that the river stream took away both of his vessels.⁸⁹

The river ports and harbours were strategically positioned at the intersections of vital land and waterways (transport hubs). This placement facilitated the transportation of goods from the economic hinterland, which were delivered to the river via land routes.⁹⁰ Streets and roads led to the riverbanks and harbour wharves. In Kaunas, Vokės kampas (now Muziejaus) and Kalėjimo (now T. Daugirdas) streets extended from the town hall square to the port.⁹¹ Additionally, in 1583, there was mention of “Ponierska” (now M. Valančiaus) street, which led toward the port by the Neris River.⁹² A similar layout existed in Kėdainiai, where two streets were constructed in the 16th century, running from the southeast corner of the Great Market Square to the harbour in the Skongalis suburb.⁹³ A street connecting the town hall square with the port was also found in Vitebsk.⁹⁴ Furthermore, in the years 1693–1695, an inventory of the Merkinė parish mentions a “cross street to Nemunas” in Merkinė.⁹⁵ In Grodno, several streets led toward the River Nemunas. Because of this orientation, they were named “Ulica od samego Niemna”

⁸⁷ Kiaupa Z. 2010b, p. 168.

⁸⁸ Kiaupa Z. 2010b, p. 214.

⁸⁹ Samalavičius S. 2011b, p. 90.

⁹⁰ Čelkis T. 2021, p. 110–113.

⁹¹ Kiaupa Z., Glemža L. 2023, p. 109.

⁹² Bertašius M. 2013, pp. 188–189.

⁹³ Juknevičius A. 1994, p. 233.

⁹⁴ Tkačev M., Koledinskij L. 1983, pp. 69–71.

⁹⁵ LVIA, F. 1135, desc. 4, no. 474.

(1680), “Ulica nad brzegiem Niemna idąc do zamku” (1755, 1783), and similar names.⁹⁶ Roads extended from the wider area to the docks of towns and private estates, facilitating the transportation of goods to warehouses.

IV. Buildings in river ports and harbours

To ensure the effective operation of ports, they depended on a material infrastructure consisting of several crucial buildings, each of which will be discussed in separate subsections. These elements included goods warehouses were constructed in the ports; in some ports shipyards and repair workshops were established, customs offices were set up, and various other purpose-built buildings played a vital role in supporting port operations.

a) Goods warehouses

Every port or wharf typically had at least one wooden, and sometimes brick, warehouse for the loading and storage of goods.⁹⁷ Warehouses during the 16th–18th centuries were referred to by different names in various sources, such as Polish “spichlerz”, “szpichlerz”, “skład”, Ruthenian “sklad”, “spichler”, German “Speicher”, and were sometimes called “świroń” or “magazyn”.⁹⁸ Warehouses in ports and harbours located along the Daugava coast were referred to as “puńie”.⁹⁹ They were often distinguished from warehouses with other purposes, emphasizing that they were used for the storage of goods for export (referred to as “spichlerz portowy”¹⁰⁰) or were identified by their location along the riverbank.

According to A. Homecki, warehouses served two primary functions: 1) storing and holding goods for export and 2) winter storage for ships’ equipment, including ropes, sails, anchors, and oars.¹⁰¹ Goods were stored in warehouses from late autumn to early spring when the rivers were not navigable.¹⁰²

As early as the 15th century, during the reign of Grand Duke of Lithuania Alexander, salt and wax warehouses were constructed near the Kaunas customs house to collect these resources.¹⁰³ This policy was perceived by Mitrofan Dovnar-Zapol’skij as an attempt to establish a state monopoly on wax and salt.¹⁰⁴ In 1540, a salt warehouse was mentioned at the customs office in Jurbarkas, and on November 30, 1576, Grand Duke Stephen Batory granted Grodno the right to maintain a salt warehouse.¹⁰⁵

However, with the increasing trade activity in Baltic Sea ports, warehouses began to appear in almost every river port and harbour. In the 15th century, Kaunas already boasted warehouses belonging to German and Lithuanian merchants, which were located at Vokės kampas, Kalejimo, and other streets leading to the port. During the 16th–18th centuries, one- or two-story warehouses with basements were constructed adjacent to residential buildings.¹⁰⁶ In the 16th–17th centuries, at the intersection on the western edge of Kaunas Town Hall Square, two warehouses

⁹⁶ Gordziejew J. 2002, table 15.

⁹⁷ Orłowski R. 1956, p. 84.

⁹⁸ Dumnicki J. 1987, p. 6.

⁹⁹ For example, in 1758 the mentioned warehouse (“puń”) in Beshankovichy: AGAD, AR XX, no. 33, p. 16.

¹⁰⁰ LVIA, SA, no. 5123, p. 413.

¹⁰¹ Homecki A. 1970, pp. 41–49.

¹⁰² Guldon Z. 1967, p. 98.

¹⁰³ Russkaja. 1910, pp. 201–204.

¹⁰⁴ Dovnar-Zapol’skij M. 1901, p. 481.

¹⁰⁵ Dovnar-Zapol’skij M. 1901, p. 481.

¹⁰⁶ Bertušius M. 2013, p. 75.



Fig. 4. Fragment of the panorama of the city of Grodno with the port, engraving by Tomasz Makowski, 1600. Source: Čelkis T. 2021, p. 87

owned by the city were built to store exported grain. A city warehouse (known as “spichlerz miejski”) was already present in the town hall square by 1797.¹⁰⁷

In the 17th–18th centuries, goods warehouses on both sides of the Nemunas River were noted in Grodno. On the right bank, Aleksander Massalski had a mansion with a warehouse on Bridge Street (“ul. Mostowa”), which, in the first half of the 17th century, was sold to Andrej Milawski.¹⁰⁸ The Bernardins of Grodno owned half of a goods warehouse near the Nemunas, as recorded in 1642 by Krzysztof Kopeć, marshal of Lida.¹⁰⁹ Warehouses were also found along Street “na brzegu Niemna”. Several warehouses were concentrated on Hornicy Street (ul. Hornicka) in Ryłowce, a suburb on the left bank of the Nemunas.¹¹⁰ For example, in the 17th century, the Dominicans had an estate with a warehouse, which was bequeathed to the monastery by Samuel and Barbara Oziembłowski.¹¹¹ According to an inventory from 1773, the Jesuit college owned two old and abandoned warehouses (“2 spichrze cale stare i opuszczone”).¹¹² In 1789, Grodno’s inventory mentioned two warehouses near the bridge, which belonged to the economy, while two other warehouses were owned by Jews (Fig. 4).¹¹³

Warehouses were also found in other cities. For example, on February 18, 1611, there is mention of Stephan Połudowicz’s warehouse, a resident of Merkinė, where salt was stored.¹¹⁴ In Polotsk in 1650, a warehouse owned by Ivan Sergejevich, a member of the city council, is documented. It was built in the Great Posada “next to the defensive fortifications” near Daugava.¹¹⁵ We learn about the presence of goods warehouses in Kėdainiai from a document dating back to 1724. This document states that preparations were being made to construct warehouses near the bridge, slightly higher on the shore where the spring tides do not reach.¹¹⁶

Vilnius set itself apart from other ports by establishing a distinct warehouse district in the Lukiškės suburb during the 16th–18th centuries. Stasys Samalavičius provided a detailed description of the appearance and inventory of these warehouses.¹¹⁷ Along the riverbank, warehouses

¹⁰⁷ Bertašius M. 2013, p. 75.

¹⁰⁸ Borowik P. 2005, p. 72.

¹⁰⁹ Borowik P. 2005, pp. 118–119.

¹¹⁰ Gordziejew J. 2002, pp. 158–160.

¹¹¹ Borowik P. 2000, pp. 18–26.

¹¹² Borowik P. 2005, pp. 200–208.

¹¹³ LVIA, F. 11, descr. 1, no. 307, p. 370.

¹¹⁴ Merkinės. 2010, p. 394.

¹¹⁵ Aktavaja. 2006, p. 199.

¹¹⁶ Samalavičius S. 1962, p. 36; Ragauskienė R. et al. 2022, p. 178.

¹¹⁷ Samalavičius S. 2011a, pp. 161–167.

were constructed using logs on brick foundations. The number of warehouses in individual estates varied, ranging from 1 to 8. The warehouses featured references to former partitions and internal staircases, suggesting that some of them had two floors, while there are also mentions of cellars in some places. Typically, these warehouses had sturdy wooden double doors with secure iron fittings. They often had two sets of double doors, with one opening into the yard and the other facing the river. The river-facing doors were typically equipped with iron hooks and secured from the inside with robust latches, while the yard doors had external locks.

Warehouses were also present in smaller towns and estates, with information about them primarily available from the 17th–18th centuries. The number of warehouses in these ports mentioned in historical sources varied, ranging from just one to several dozen. For example, in 1773, there was a goods warehouse in Masty, which was owned by the Sapieha, while in Zhelviany there was a single small warehouse (“szpichlerzyk”).¹¹⁸ In contrast, in 1628, an inventory of Mikalayewshchyna listed 13 goods warehouses, one of which was used to store estate goods, and the remaining twelve were rented to merchants.¹¹⁹ In 1737, in Radziwiłłs Svyerzhan’ harbour near the Nemunas, there were 31 goods warehouses located in different parts of the town: “na kopanicej”, “za mostem”, “na ogrodach”.¹²⁰ In 1633, the town of Chashniki was founded along the Ula River, a left tributary of the Daugava, and its estate inventory listed 39 goods warehouses.¹²¹ The number of warehouses can provide insight into the exceptional geographical importance and economic potential of a specific town or estate.

During the 17th–18th centuries, the policies of large landowners encouraged the construction of new warehouses. For instance, in the regulations of the town of Lyubcha in March 1647, which belonged to Janusz Radziwiłł, among the rights granted to the townspeople was an encouragement to build warehouses near the Nemunas River. It stated, “since the town has a good port, the townspeople should build warehouses for their own benefit”.¹²² In July 1682, Kazimierz Jan Sapieha donated a plot of land in the Vowpa ward near Zel’va folwark to Teofil Olendzki, a podczasz of Wawkavysk, for the construction of a grain warehouse (“na pobudowanie spichrza na zboże dla splawiania po Niemnie”).¹²³

According to Bartłomiej Kwiatkowski, until the mid-19th century, wood was the primary building material used for constructing warehouses. Only in larger estates were these structures made from bricks. These warehouses were typically rectangular one- or two-story buildings equipped with a ventilation system.¹²⁴ Recommendations for constructing warehouses similar to these can be found in the economic advice book published in 1675 by Jakub Kazimierz Haur.¹²⁵ Usually, a warehouse had two gates or doors: one facing the yard and the other opening toward the river.

We can also find descriptions of warehouses in estate inventories. For instance, in the 1796 inventory of Masty and Volya,¹²⁶ it was mentioned that there were two warehouses situated on the banks of the Nemunas in Masty. The first warehouse was constructed from wood, and its entrance was on the side facing the road. It had a double (“podwoyne”) door with iron hinges and hooks, along with an internal lock (“z zamkiem wewnętrznym”). The floor of this warehouse was wooden, and it included a chamber for storing supplies for wicinas (“rekwizytyw

¹¹⁸ VUB, RS, F4(A1505)12071, p. 5.

¹¹⁹ AGAD, AR XXV, no. 2666, p. 146.

¹²⁰ AGAD, AR XX, no. 44, pp. 1–4, 7–9, 10–12.

¹²¹ Akty. 1908, pp. 254–281.

¹²² “Ponieważ port dobry jest, tedy szpiklerzów mieszczenie nabudować mają dla swego pożytku” — Alexandrowicz S. 1962, pp. 439–448.

¹²³ Sapiehowie. 1891, p. 169.

¹²⁴ Kwiatkowski B. 2012, p. 87.

¹²⁵ Haur J.K. 1675, p. 12.

¹²⁶ VUB, RS, F4(A1404)39687.

wicinych”). The chamber door was also equipped with iron hinges and a lock. There was a double door on iron hinges and hooks with a lock on the river-facing side of the warehouse. The entire structure was covered with straw.¹²⁷ The second warehouse, newly built, was made from pine wood and accessible from the road through a double door with hinges and hooks, along with a lock installed on the inside. Another door was installed in front of it. Similar to the first warehouse, it was also covered with straw. A third warehouse, located at the Volja harbour on the Shchara River (a left tributary of the Nemunas), was constructed from pine logs, featuring doors with four iron hinges, one with an internal lock, and the other door on the river side.¹²⁸

However, it's worth noting that not all warehouses were made of wood. For example, in the 1652 inventory of the Panemunė folwark, which belonged to Janusz Radziwiłł, there's a description of a goods warehouse near the Nemunas, which was “of Prussian construction and covered with tiles. It had four doors with hinges, one of which had an internal lock”.¹²⁹

b) Shipyards and ship repair shops

Another essential aspect of the GDL river ports and harbours was the presence of shipyards and ship repair shops.¹³⁰ Based on the duration of ship construction in one location, shipyards could be categorized into permanent (stationary) and temporary (mobile).

The earliest known permanent shipyard was situated in Kaunas. According to Z. Kiaupa, during the 16th–17th centuries, ships were constructed in Kaunas for local merchants and other customers by shipbuilders concentrated on the left bank of the Nemunas, particularly in Aleksotas suburb.¹³¹ The first mention of Aleksotas dates back to August 17, 1554, in the records of Kaunas mayor (“wójt”). It was in these records that Andrzej Orszulski complained to the helmsman Maciej Żydellis for not carrying out an order given the previous autumn to move the perg (type of ship) to “lixthat”.¹³² Aleksotas continued to appear in later sources as a recognized site of shipbuilding. For instance, in 1580 the term alexstat was used to denote the place where boats were being constructed (“do Aleksztatu, gdzie wiciny robią”), while in 1625 it appeared as leksztat, again identified as the location where wicinas were built (“nedaleko leksztatu, gdzie wiciny budują”).¹³³ In Aleksotas, there was not only a shipyard but also a settlement, with the majority of its inhabitants being shipbuilders. The Kaunas shipyard likely operated until the middle of the 17th century (during the Moscow occupation in 1655).

According to A. Sztachelska-Kokoczka, in noble estates, ship repair and construction typically took place in their own shipyards.¹³⁴ For example, in 1655, in the Principality of Sluck ruled by the Radziwiłłs, wicinas were built in their own shipyards (“w własnych warsztatach”).¹³⁵ In 1646, the inventory of Dzyerawnaya estates, also belonging to the Radziwiłłs, provides information about the shipyard and repair facility, consisting of multiple buildings. The document

¹²⁷ VUB, RS, F4(A1404)39687, p. 2.

¹²⁸ VUB, RS, F4(A1404)39687, p. 3v.

¹²⁹ “Szpichlerz nad Niemnem, pruskim budowaniem dachówką nakryty, drzwi czworona na zawiasach — w jednym wnetrznym zamku. Od tego szpichlerza przez podworze izdebka s komorką boczną, do nich drzwi na zawiasach” — *Inventoriai*. 1962, p. 174.

¹³⁰ Each river basin was characterized by different flat-bottomed ships, although sometimes visiting craftsmen built ships typical of other rivers. The Vistula and its tributaries, the Bug and Narew, were navigated by szkutas, komiegas, and dubas. Strugs were characteristic of the Daugava basin. Wicina (Lithuanian “vytinė”), pergs, and strugs (in the Neris River) flowed through the Nemunas and its tributaries. Komiegas, shuhaleyas, and other ships sailed on the Dnieper and its rivers.

¹³¹ Kiaupa Z. 2010a, p. 207.

¹³² LVIA, SA, no. 13842, p. 272v; Kiaupa Z. 2010a, p. 208.

¹³³ VUB, RS, F7, *Book of Acts of Kaunas Wójt from 1603–1628*, p. 37, 163.

¹³⁴ Sztachelska-Kokoczka A. 1991, p. 216.

¹³⁵ Dederko B. 1962, pp. 54–55.

mentions a ditch reinforced with thick planks where the wicinas could flow (“rów, którym wiciny przychodzą, odyłowany”), a wharf reinforced with planks with a lockable gate, a building (“klatka”) for blacksmiths, and a bakery for preparing food for the workers (“piekarnia dla czeladzi i rzemieślników”) near the river.¹³⁶

Such structures were often located at the harbours in the upper reaches of the rivers. For instance, in 1781, the shipyard of strugs was found on the Neris upper reaches in Sosylenka, “gdzie strugi nowe robią się”.¹³⁷ In the upper reaches of the Nemunas in 1787, a shipyard was situated in the village of Astravok, near the Nemunas tributary Usa, where wicinas were also constructed (“do Ostrowka, wsi gdzie się wiciny budują”).¹³⁸

Frequently, shipyards were not permanently situated in one location. As Ludwik Wolski noted, it was not often for ships to be constructed at established shipyards, but rather, craftsmen would gather at suitable locations. Ships were often built along riverbanks, and those involved in trade did not always maintain a fixed shipyard for this purpose. They would choose a shipbuilding site based on the circumstances and invite shipwrights and laborers to that location.¹³⁹

On occasion, shipbuilders were hired from relatively distant cities. For instance, a document dated December 19, 1560, reveals that Lipman, the brother of Brest customs officer David Szmerlevicz, along with Vitebsk citizens Nikon Semionovich and Andrej Martinovich, had entered into a contract for the construction of six strugs in Brest on the bank of the Bug River.¹⁴⁰

We have records indicating that Kaunas shipbuilders didn't solely operate in Aleksotas but were also engaged in other settlements along the Nemunas, Neris, and various rivers. For example, in 1607 the Kaunas shipbuilders Andrej Janowicz and Urban Nascewicz had a contract with Jan Rozanowicz to build a wicina at Serežius. Later, in 1624, another Kaunas craftsman, Jakub Židonis, was employed by a Vilnius merchant, while his colleague Marek carried out repairs on the wicina of the nobleman Jan Ogiński.¹⁴¹

Temporary shipyards were not only involved in the construction of merchant ships but also leisure craft. For instance, in 1545, two ships were built for ruler Sigismundus Augustus, one in Trakai and the other in Vilnius. The shipbuilder “Casparus Italus navigium magister” was involved in their construction.¹⁴²

The appearance of these mobile shipyards is somewhat challenging to describe comprehensively, as our knowledge of them is fragmentary. According to A. Homecki, they were equipped with scaffolding (“rusztowanie”) on which ships were either constructed or underwent repair work.¹⁴³ Such wooden structures—beams or scaffolding—are mentioned in 1761 in Svyerzhn', where a wicina that was built in 1755 was repaired. The document states that the ship was supported by the beams: “teraz stoi na lagrach dla reparacyi”.¹⁴⁴ Not only were the existing wicinas on the beams repaired, but new ones were also built. For example, in 1769 in Svyerzhn', two unfinished wicinas are mentioned, which were “na legarach”.¹⁴⁵ It's probable that these installations were temporary, and once construction or repairs were finished, they were disassembled and moved by craftsmen to another location.

¹³⁶ AGAD, AR XXV, no. 736, p. 25; Alexandrowicz S. 2011, p. 218.

¹³⁷ LVIA, SA, no. 3939, p. 494–497.

¹³⁸ LVIA, SA, no. 3939, p. 655–657v.

¹³⁹ Wolski L. 1849, pp. 269–270.

¹⁴⁰ Metrika. 2021, pp. 141–142.

¹⁴¹ VUB, RS, F. 7, *Book of Acts of Kaunas Wójt from 1606–1607*, p. 44, 63, 139v; Kiaupa Z. 2010a, p. 212.

¹⁴² AGAD, ASK, section 1, no. 120, p. 296.

¹⁴³ Homecki A. 1970, p. 44.

¹⁴⁴ AGAD, AR XX, no. 24, p. 41.

¹⁴⁵ AGAD, AR XX, no. 104, p. 29.

c) Other buildings

Customs buildings were present in the more important ports of the GDL. Over time, water customs were established in various locations, including Brest, Dinaburg (Daugavpils), Drohiczyn, Grodno, Jurbarkas, Kaunas, Mogilev, Polotsk, Rechitsa, Vilnius, and Vitebsk. Unfortunately, we have limited knowledge about their physical appearance. From what we do know, in the 16th century, customs officers were typically stationed in a customs house. Within these customs houses, there were provisions for storing receipts, money, customs registers, and a customs seal used for marking merchant receipts and goods. Scales for weighing goods were also available in these customs facilities.¹⁴⁶ For instance, a customs house was established in Jurbarkas in 1540, and historical records indicate the presence of a merchant's chamber and salt warehouses.¹⁴⁷

In some cases, mentions of a former watchman's house near the warehouses are found. For example, in 1602, a contract of sale by Janusz Radziwiłł granted Jan Karol Chodkiewicz four morgen of land near the Nemunas harbour in the town of Piasochnaja for the construction of goods warehouses and a watchman's house.¹⁴⁸ While it's possible that there were structures serving various other purposes in ports and harbours, our knowledge about them remains limited.

The ports and harbours of the Grand Duchy of Lithuania were established through an adaptation to the natural conditions of the rivers, with only minimal alterations to their natural state. The infrastructure along the riverbanks served multiple functions, including the concentration and storage of goods, shipbuilding and repair, and the regulation of waterways. These facilities were sufficient to fulfill the primary purposes associated with the transportation of goods via rivers. Further investigation into the river ports and harbours could provide valuable insights not only into the evolution of riverine transportation systems but also into the complex interactions between the natural environment and the human interventions that shaped it.

V. Conclusions

During the 16th to the 18th centuries, historical sources from the GDL reveal significant distinctions in the nomenclature and characteristics of ports and harbours. Ports (known as "port" in Polish and Ruthenian) were typically established within cities, sometimes referred to as "miasta portowe". Conversely, small towns and private estates often featured natural harbours (,harbour" referred to as "przystań" in Polish and "pristan'" in Ruthenian) for ship mooring and goods loading purposes. These terms were employed to denote the importance of specific locations in trade, as well as to distinguish their qualitative and quantitative differences.

Harbours were strategically located along rivers, typically featuring sandy shores conducive to ship docking and the loading and unloading of goods. They were designed to accommodate fluctuating water levels and the dynamic nature of riverbanks, subject to annual changes due to tides. Wharves, predominantly found in major ports, played a crucial role in safeguarding riverbanks against erosion. These structures were specifically tailored for efficient cargo handling, facilitating the transfer of goods between ships and adjacent warehouses. Historical insights into riverbank reinforcement are supplemented by archaeological findings, which reveal remnants of wharf constructions. Strengthening riverbanks often involved the installation of wooden piles driven into the riverbed in organized rows and fortified with stones, upon which planks were laid to form the wharf surface.

During the 16th to the 18th centuries, ports and harbours in the GDL were characterized by distinctive infrastructure, comprising warehouses for storing both export and import goods, along with permanent and temporary shipyards dedicated to ship construction and repair.

¹⁴⁶ Karalius L. 2011, p. 3.

¹⁴⁷ Alexandrowicz S. 2011, p. 79.

¹⁴⁸ Alexandrowicz S. 2011, pp. 216–217.

Larger cities boasted customs buildings, indicative of their pivotal role in trade. Predominantly, these buildings were constructed from wood, with mentions of brick warehouses found only in select locations. The presence of such structures underscored the economic significance and commercial potential of individual ports and harbours, shaping their prominence in regional and international trade.

Expanding research on the river ports of the GDL could help uncover the distinct characteristics of individual ports and harbours. Further narrowing the chronological boundaries might reveal the developmental trajectories of specific ports and harbours. However, this would necessitate the accumulation of a substantial volume of data. In future research, it is imperative to underscore the social dimension of ports and harbours, including the diverse artisans and groups involved in their operations. Moreover, it is essential to recognize the pivotal roles of ports as administrative and trade control centers.

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