

JSACE 4/13

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Received
2015/09/01
Accepted after
revision
2015/11/30

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<http://dx.doi.org/10.5755/j01.sace.13.4.13593>

Neris is the second longest river in Lithuania, flowing over the territory of Vilnius, the capital of Lithuania. It played an important role in the history of Vilnius, particularly, as a waterway, which, in the past, connected the Grand Principality of Lithuania (GPL) with the neighbouring regions and countries. The river and its tributary, Vilnia, played the main role in the economic development of the city, as well as the development of the industry based on water-driven mechanisms, fishing and other riverside trades, recreational activities of the inhabitants and the urban infrastructure of Vilnius. The role of the river, which decreased in the second half of the 19th century because of the development of land (railway and automobile) transport, became negligible in the years of the soviet power (1945-1990). It happened due to the drop of water elevation caused by the intense drainage of the areas and, particularly, the barbarous construction of a dam at the riverhead in Byelaruss in 1974, which fenced off a large area of the Vileyka Reservoir. Moreover, the works for deepening the riverbed by removing stones and shoals were stopped, and it made the river unnavigable. The paper also describes frequent floods caused by the drifting of ice in the spring, which brought great damage to the city in the past, as well as the types of ships and rafts used for navigation.

KEYWORDS: river Neris, etymology of its name, navigation, types of ships, rafts, floods.

Introduction

Water transport is the cheapest and the oldest mode of transport. It operates on a natural track and hence does not require huge capital investment in the construction and maintenance of its track. The cost of operation of water transport is also very less, it has the largest carrying capacity and is the most suitable for carrying bulky goods over long distances.

That is why water transport was not only indispensable to foreign trade but had played a very significant role in bringing different parts of Europe closer as well. In Lithuania like in other European countries inland water transport had been used for centuries and was very important to the development of local economy. There are 600 kilometres (370 mi) of natural waterways perennially navigable. The main Lithuanian river Nemunas all the time was suitable for big barges, as second river Neris (Vilija) before the war was chiefly used only for small boats and raft transport for navigation between Kaunas and Jonava (40 kilometres), as well as between Vilnius and Nemėninė (32 kilometres). Navigation had been undertaken with a view to regularising the riverbed especially by removing the rapids. The vessels engaged in its navigation were of 5 to 8 tons and used for carrying passengers as well as for agricultural produce and merchandise.



River Neris and its ford ("brasta") near the castle of the ancient Lithuania's capital was widely known as an important place through which numerous land ways linking southern and northern part of Lithuania had been passed.

Unfortunately, nowadays the role of Lithuanian inland waterways in the overall transport system is limited. This is because of a number of reasons including: shoals, seasonal change in water level, limited number of navigation routes, obsolete fleet of inland water vessels not adjusted to carry different types of cargo and passengers, and lack of modern infrastructure.

In the architectural point of view Vilnius, which territories are situated on the both sides of the river, is rather rare city in the world which doesn't take advantages of these favourable natural conditions. Fortunately, according to the future vision of city there are number of long-term plans to use more intensively the favourable functional and compositional resources of Neris and thus to resume some of old historical traditions.

The method used in this paper was based on compiling the historical facts, while the events described were taken from the sources, including numerous state and municipal archives. Old Vilnius newspapers published at the end of the 18th century, as well as in the 19th century and later, were also studied. The author looked through the documents stored in the municipal archive, which deal with the navigation on the Neris river, its use for the town's needs. The plans for using the Neris River on a much wider scale and the perspectives of the suggested measures, as well as the attempts made to turn the city's "face" towards the river and more intense development of the "water front" architecture were described based on studying recent information in the mass media.

Though the origin of the river name, Neris, has been explained differently, this name has much in common with the name of Lithuanian capital, Vilnius. According to the work of Jan Dlugosz¹, a Polish historian, '<...>Vilnius, the current capital of Lithuania, was named after duke Vilius, under whose leadership many people left Italy and roamed over different countries. Similar names (Vilija and Vilnia) were given to the rivers, flowing through the Vilnius territory' (Dlugosz, 1868). In another source, an old Polish geographic reference book (Słownik geograficzny 1893), the origin of the name Vilija is referred to a Belarusian word '*вилать*', which means 'to twist', 'to wind' or 'to change direction'. However, linguists believe that the names of both rivers are Baltic and derive from the verbs *nerti* (to dive) and *vilnyti* (to wind or twist).

In the book of count Konstantinas Tiškevičius, 'Neris and its banks', describing his impressions about the voyage down the Neris River, which was published posthumously by Jozef Kraszewski in Dresden in 1871, it is written that Vytautas The Great, in his letter to crusaders in 1398, called the river Nerige. In this book, he mentioned that the river was called so in 1390 in the deed of Jogaila, by which the king transferred Paneriai district to Vilnius cathedral chapter. In particular, he wrote: '<...>obstaculum in superiori parte nostri obstaculi in fluvio Vigilia situati'. This way, Jogaila wanted to perpetuate the memory of Lithuania's Christianization.

In the middle of the 19th century, K. Tiškevičius recorded a legend, saying that, in the old times, a tailor, whose name was Steponas, had been turned to a stone, and his wife Ulijona had been crying so hard that a spring had formed from her tears, which people called Vuliana, Vilijana and, finally, Vilija.

¹ Jan Dlugosz (1415–1480) was a nobleman of Wieniawa coat of arms, a Polish historiographer, a diplomat, a canon at Krakow and a chronologist. He wrote much about the history of Lithuania and was one of the first researchers who announced that Lithuanians were of Roman origin. Along with providing valuable objective data, he also demonstrated one-sided, tendentious views on the policy of the Grand Duchy of Lithuania.

Method

The name of the river and its navigational characteristics

As mentioned above, there were some attempts to trace the origin of the river to a Belarusian word *vilat'* (i.e. to wind or often change direction)².

The Neris is the largest tributary of the Nemunas River and the second longest Lithuanian river, having the length of 510 km. A section of this river of 275 km is on the territory of Belarus, while the remaining section of 235 km is in Lithuania. The basin area is about 25 thou. km², with the area of 14 thou. km² belonging to Lithuania.

Not so long ago, the Neris was much more full-flowing³ and, therefore, played a very important role in the trade of Vilnius with other countries, particularly, with Slavic lands because it was the main mover of the state's development. The plan of Vilnius drawn in 1790 by a Prussian officer shows that Neris was abundant in water near Vilnius and had the width of 80-100 steps and the depth of 8-10 feet. This was sufficient for navigation even during droughts. In the Russian study of rivers and navigation, it was mentioned that the draught of a freighter with the tonnage of 2000-8000 poods⁴ did not exceed 3-4 feet.

The level of water in the Neris had dropped considerably in the Soviet period due to the drainage (reclamation) of the swamped lands at the riverhead. Besides, it should be noted that a 12 m high dam built in 1974 in Belarus near Vileyka, at a distance of 406 km from the mouth of the Neris river, also greatly contributed to its drying up (Kudaba 1985). An artificial pond of 73 thou. hectares, which was twice as large as Kaunas reservoir, was also made (Žemulis 2014). It caused the decrease in the river's flow rate near Vilnius by more than 10 percent.

An artificial pond could also have been made near Vilnius. Thus, in 1938, the construction of the first hydroelectric power station was started on the Neris near Turnišķės. According to the plan, the water level had to be 11.6 m, the reservoir area – 5.6 km² and its volume – 27 mill. km³. When Lithuania regained the Vilnius region, the work was continued by the joint-stock company 'Elektra'. The base of the dam was being constructed, a narrow gauge railway line, as well as a road, were built and the electric power lines were set up. The construction work was suspended because of the war to be never resumed in the post-war years (Kilkus 2011).

Navigation in the past

In the past, both the upper and the lower reaches of the Neris were navigable. It is known that, in the 17th-19th centuries, about 60-80 ships arrived at Vilnius or sailed by it every day. The ships sailed not only to Kaunas. In the 'Sarmatiae Europaeae description' chronicle (1570), Alessandro Guagnini (1535-1614) wrote that the Neris was a river with intense navigation, which was used by the residents of Vilnius for transporting goods even to Danzig (as mentioned in the 'German chronicle'⁵). It is also well known that the merchants from Vilnius and other places transported their goods in this way in 1380, 1444, 1494, 1535 and other years. The ships also carried cannons from Vilnius to Klaipėda (Šėmienė 1994) because Vilnius was famous for its cannon foundry ('puškarnia').

2 The author of this book believes that it is necessary to clarify the situation and keep to the opinion of Vyktintas Vaitkevičius about the considered problem, which he had thoroughly analysed and expressed as follows: 'The problem associated with the river names, Vilija-Neris, which has been in the centre of discussion for many years, should not be solved only in terms of ethnolinguistics'. The level of knowledge of this region's history allows us to put forward a hypothesis that 1) the name Vilija (Velija, Velja or Vilja) is the only historical name of the upper reaches of this river (up to the 141st km); 2) the Eastern Balts (Lithuanians), who used the Neris name, referred it to the river section from the junction of Vilija and Naroch; 3) in the 11th-12th centuries, the name of Vilija (Velija, Velja or Vilja) emerged due to the expansion of East Slavs or the domination of the Ruthenian language in the GDL internal office in the 15th and 16th centuries. Later, when the Polish language had become dominant in this region, Neris was called only by the name of Vilija (Vilja, Velja) (Vaitkevičius 2005).

3 The plan of Vilnius (1808) demonstrated that four rivers flowed into the Neris River in the area, stretching from the middle of the present Antakalnis Street to the former Slushko Palace. However, in 1845, as many as five small rivers, flowing into the Neris from Viršupis to the same place, were shown in the plan. Historians have found a record in the Lithuanian Metrica that the sixth small river, Giraitė, flowed in the Antakalnis district. However, its location has not been found (Jurkštas 1990).

4 Pood is an old Russian unit of weight equal to 16 kg.

5 German chronicle by Johannes Friedrich Rivius (1500-1553).

K. Tiškevičius wrote that, in 1390 Samogitians, through the mediation of Vytautas, had made a trade agreement with Karaliaučius (Kaliningrad) and since that time crusaders had stopped hampering their trade (the exchange of goods). The most active traders were from Jurbarkas, Ragainė and Klaipėda. In 1404, Lithuanians started shipping wood, grain, seeds, flax, hemp fibres and other products down the river to Gdansk and, in return, got clothes, sugar, salt, herrings and iron. There were heaps of logs for rafts on the Neris banks down from the Antakalnis district (Tyszkiewicz 1871). During the 15th-17th centuries, there was a landing for merchant ships on the riverside of Lukiškės, which was surrounded by wooden barns with stone foundations for storing goods. This suburb also had a lot of large wooden barns for rafts and logs floated to Vilnius down the Neris River and dragged out on the riverbank not only in Lukiškės, but also in Antakalnis and other places.

On November 26, 1492, in Trakai, Alexander, the Grand Duke of Lithuania, granted the city merchants the right of having stores and free trade along the banks of the Neris River on its route up to Kaunas. He also once again granted Magdeburg rights to Vilnius. This meant that foreign merchants were prohibited to sell their goods in Lithuanian towns and cities without Magdeburg rights. When passing Vilnius, they had to stop there, and if there were merchants who would like to buy their goods, these merchants had the priority of buying the delivered goods.

The names of the following old ships and rafts can be found in the historical documents: *vytinės, strugai, laibos, dėžės, pergos, batai, skultai, kamegos, etc.* (Little Lithuanian Encyclopedia 1968). Note that these Lithuanian names are given in their original form because it is hardly to find their exact English equivalents, but their definitions will be provided below.

There are no detailed pictures and descriptions of these ships (boats) and rafts. *Vytinės* as water facilities are the best known ships. They are followed by *strugai*⁶. According to R. Adomaitis, a historian, the head of the Navigation History Department of the Lithuanian Sea Museum, *vytinė* was the main type of local merchant ships which was unique and used only in Lithuania in the period from the 15th to the end of the 19th century. *Vytinės* carried wood and grain even to Gdansk (Vytinė 2013). Its etymology as an original Lithuanian word confirms that it refers to a historical Lithuanian ship. Such words as *vytininkas* (river transport worker), *vairas* (rudder), *irklas* (oar), *kartis* (punt pole) and *laivavirvė* (ship rope) emerged together with this word in Lithuanian vocabulary.

It is believed that the word *vytinė* also defines the construction of the ship, the bent frames⁷ (*špantai*) of which resembled flexible willow withes (*vytelės*). It also applies to the old ships described by K. Būga, which sailed Lithuanian lakes and rivers. Their hulls were weaved from withes and covered with leather (Vytinė 2013).

K. Tiškevičius wrote that *vytinės* mainly sailed on the Nemunas because the Neris River was dangerous (there were many shoals⁸ and lots of large stones in it), and only light *strugai* could sail there (Tyszkiewicz 1871). Later, researchers have shown that Tiškevičius was wrong, and *vytinės* also sailed on the Neris river in the 16th-18th centuries (Ragauskas 2012). Some data were provided by historian J. Jurkštas, who wrote about the old Vilnius waterways. According to him, *vytinė* was a large, 65 m long, 5-6 m wide and 1.8 m high flat-bottomed ship with one straight sail and pointed nose and back end. It could carry the cargo of about 300 tonnes. In the 17th century

What ships were sailing the Neris River in the past?

⁶ Strugas (*cmпыз* in Russian) is a flat-bottomed river or lake boat propelled by oars or sails which was used in Russia in 11th-18th centuries for carrying people and cargo. It was usually 20-45 m long and 4-10 m wide. After delivering goods to Riga and Karaliaučius and their unloading, the ship used to be sold for firewood. Otherwise, a team twice, as large as the initial one, would be required to pull the boat upstream by the rope tied to the top of the mast (Samalavičius 2012). When armed with guns, *strugas* could be used for military operations.

⁷ Frames (*špantai*) denote the cross beams of the boat body, to which its walls are fixed.

⁸ Shoal (*rėva*) is a sandbank visible at low water and consisting of sand, silt and/or pebbles.

vytinė cost 600 grosze (Jurkštas 1990). The direction of its sailing was regulated by a long oar like that used on *sieliai* (rafts) rather than by an ordinary rudder. The team consisted of several people. The ship even had a masonry stove for baking bread because the voyage to the sea took several weeks (Vytinė 2013). The ship-building centre was in Kaunas, but the ships of the above type were also built in Vilnius in the 19th century. There is a hypothesis that the suburb of Kaunas, Vičiūnai,

which is situated on the Nemunas, bears a relation to *vytinės* (Vanagas 2008). From the perspective of navigation, the Neris River had always been very 'capricious' because there were many dangerous shoals and large stones⁹ in it. Therefore, the river required cleaning. There are some documents proving that Vilnius residents paid for cleaning the river in 1589. The work was repeated in 1606, but that time the government covered the expenses.

This is a record from the diary of a German diplomat Konrad von Kyburg (though some historians doubt its authenticity): 'In the afternoon of June 30, 1397, we took beautiful ships and started sailing on the Neris River to Kaunas,



Fig. 1

One of the numerous stones in Neris River

where we arrived on the 3rd of July. We could be there much earlier because the ships were very light and the current was swift, but we were afraid to sail at night and dash against underwater stones or fishers' nets (barriers), which were plenty in the river. Therefore, we sailed only in the daytime' (Кибург 1868).

Prospects of shipping: utopia and reality

The rulers of the Grand Duchy of Lithuania were not satisfied with the state of shipping on the Neris River. They had very ambitious plans of greatly expanding the trade links of Vilnius with other countries by waterways. Count K. Tiškevičius in his book (Tyszkiewicz 2012) mentioned the idea of connecting the Baltic Sea with the Black Sea by digging a canal between the Neris and the Berezina rivers. This idea arose in the time of the rule of Žygimantas Augustas, but was turned into a vision by Žygimantas III. The ruler's son, Vladislovas, even wanted to finance the digging of this canal. In 1631, the plan of laying the way from one sea to another was discussed in the Warsaw Sejm, and a special commission was set up for determining if the project could be profitable, as well as for examining the territory, on which the canal had to be dug. Nobody knows why the project failed¹⁰.

Could one ever imagine a recreational voyage from Vilnius (the Antakalnis pier) to Odessa? However, it was not an idle fancy for Kaunas because a 2500 km water route from the Curonian Lagoon (Kuršių marios) to the Black Sea really existed! On the initiative of the Grand Hetman of Lithuania

⁹ The river transport workers, rafters, sailors and fishermen even gave the nicknames to these large stones, such as Avinas (ram), Dvyklas (reddish brown), 'Dziuravj kamen' (holed stone), Jautis (bull), Karvutė (cow), Kunigas (priest), Tilvikas (sandpiper), 'Trys broliai' (three brothers), etc., which reflected their vivid imagination and sense of humour.

¹⁰ However, it is true that the Russian government had appropriated this idea, and having changed the route, dug the Berezina Canal (in the period from 1797 to 1804). In the beginning, only timber was rafted by this route, but, in 1805-1817, middle-sized freight ships with grain and salt were sailing on the canal. During the period of 1817-1843, the shipping on the canal came to a standstill. In 1843, the bed of the canal was cleaned, the locks changed their places, and other obstacles were removed. This allowed the authorities to renew shipping on the canal. However, soon it became clear that it was unprofitable. At the turn of the 20th century, a plan of digging two canals (one for the internal trade, another for military purposes) in this area was worked out in Russia. They planned to sail their warships if the war broke out on the second canal, which would connect the Baltic Sea and the Black Sea. Unfortunately, the idea of connecting the capital of Lithuania to the ports of the Black Sea has never been realized.

and Vilnius military commander, Mykolas Kazimieras Oginskis¹¹ and using his personal funds (12 million złoty), the digging of 54 km long canal (the Oginski Canal), connecting the Shchara, a tributary of the Nemunas, and the Jaselda, a tributary of the Pripyat in the Dnieper basin, was completed in the period from 1765 to 1784. In 1784, the first ship carrying 35 'laszts' (1 laszt is equal to about 2 tonnes) of barley (i.e. about 70 tonnes of grain), came to Karaliaučius from Kherson via Nemunas (Pawłowski 1911). Otherwise, it would have required sailing around the whole Europe to get there! The Oginski Canal was used for floating rafts and logs, as well as for transporting grain, salt and potash. In 1905, 3.5 million poods of cargo were transported via the canal between the river basins of the Nemunas and the Dnieper. However, the importance of this canal has decreased with time. Finally, it was abandoned and its locks failed.(Pawłowski 1911).

Many long rafts, resembling long trains, sailed to Vilnius via the Neris. It was fascinating to watch the two rafters at the ends of the raft, skilfully steering a long, heavy and unwieldy raft at the sharp bends of the swift river by manipulating long heavy oars fixed to it. The rafts were moored to the left bank in Antakalnis or to the right bank near the sawmill, below the Green bridge and opposite the St Jacob church. The rafts and logs were pulled from the water mainly in Lukiškės and Antakalnis, where the bank was dry and gently sloping. A tax had to be paid for piling them on the bank (on the photograph made by A. Čechavičius in 1873 we can see the piles of logs on the river bank and upstream, near the Slushko palace). The rafts were floating down the Neris River almost until the middle of the 20th century. From the upper reaches of the Neris they sailed to Kaunas and, from there, to Klaipėda. Then, timber was transported by ships to Great Britain and Germany. The logs of the trees cut on the banks at the riverhead and wound with young birches or linden basts (later, with wire) were tied to make 10 m wide and up to 80 m long rafts. This was a difficult work requiring great skill. Logs, reaching 10 m in length, were sorted. Heavier logs were placed between the lighter conifer tree logs. Then, 12-13 logs were tied up to make the so-called 'lavkas', several of which formed rafts. The first 'lavka' known as 'galva' (head) had to be tied very fast. The gaps between the first three 'lavkas' were usually wider than others, which helped the rafters better control the raft at the sharp bends of the river. At the front of the first 'lavka' and at the end of the last one, 6 m long pinetree oars or rudders called 'apačinas' were firmly attached to the stamp of a forked tree¹¹. Usually, at the first end, there was a highly experienced rafter, who had to have good knowledge of the fairway, i.e. the insidious Neris River with lots of protruding stones and banks. In the strong current, the rafters usually halted the rafts by inserting a 5 m long cudgel ('šaryga'), reaching the river-bed, into the gap between the logs. On the bank, the rafts were tied with ropes to stakes driven into the ground ('hartoli-ai'). The last 'lavka' of the raft (known as 'zadnik') was coated with moss and used as a campfire for cooking or as a tent for sleeping at night, which was made of branches and covered with straw.

¹¹ Mykolas Kazimieras Oginskis was taking care of his relative Mykolas Kleopas Oginskis (1765-1833), a famous composer, the author of polonaises and mazurkas, for many years. In 1766, he bought the Slushko palace in Antakalnis.

Rafts



Fig. 2

Rafts in the centre of Vilnius (Photo by J. Čechavičius)



Fig. 3

Neris River near the St. Raphael church

The work of rafters was difficult. The Neris got narrower between Vilnius and Kernavė. Therefore, rafts had to be also made 3-4 m narrower. The rafts floated from Žeimena to Valakampiai had to be widened. The voyage down the river to Kaunas took almost a week. The rafters usually floated several rafts simultaneously. This allowed them to help each other because sometimes rafts got stuck or were wrecked. In Vilkija, below Kaunas, rafts had to be tied up again to obtain large 'cruiser' type rafts of about 120 m in length. At the mouth of the Nemunas or in Klaipėda, rafters left the floated rafts, which were usually bought by Jews, and went back on foot or by a passing transport facility.

Passenger ships on the Neris River

The landings for passenger ships on the Neris had always been arranged near the road, leading along the river bank from town to Antakalnis. Ships usually got to Verkiai or even to Nemenčinė from there. However, sailing down the river was complicated because of many whirlpools, rapids and underwater stones on the way. Near the landing there was a boat station with boats for crossing the river. Boats with raised bows, having longitudinal stripes of various colours painted on their sides, took 5-6 people at a time across the river to its right bank, where the former Piromontas country estates were situated. The rower of such a boat used only one long oar, also painted in a particular colour. On the left bank of the river, just past the bridge over the Vilnia, there were several boat clubs, the most famous of which was AZS (Akademyczny Zespół Sportowy). There, the residents of Vilnius could rent a kayak and row upstream the swift river. The area with a concrete surface has remained since that time at this place. There were also several approaches to the Neris then. The City Duma pointed out their locations in 1881 and defined the places, where pumping stations had to be built because water was used not only for fighting a fire, but also for various everyday needs.

When did steamboats appear on the Neris River? The first steamboat in the world was built in 1807 by an American, Robert Fulton, and after 30 years the English steamship 'Sirius' already crossed the Atlantic Ocean. In Vilnius, the first steamboat with a steam engine of only 10 hp, named 'Vilnius' ('Wilno'), appeared in 1867. It was launched in 1850 in the Rhine ship-building yard and floated to Vilnius. Having reached Karaliaučius, it stopped there to pass the winter. The steamboat finally arrived in Vilnius on May 13, 1856 and was moored to the pier near the Lukiškės Square. The next day (on Wednesday), followed by loud applause of Vilnius residents, the steamboat began its maiden voyage to Verkiai. Unfortunately, the condition of the riverbed at that time and too shallow water near the ferry landings did not allow it to continue the voyage on the Neris. The steamer returned to the Nemunas, sailed to the riverhead and during the summer of 1856 was travelling from Gardinas (Grodno) to Druskininkai. However, historian Adomas Kirkoras gave a different description of shipping on the Neris and the conversion of Vilnius into a river port. According to him, in 1855, duke Reinoldas Tyzenhauzas bought two steamers. The larger one named 'Kęstutis' was intended for sailing on the Nemunas, while another steamer called 'Neris' was left to sail on the river of the same name. 'Neris' began its voyages in the spring of 1856 from one of the first landings after Vilnius–Sosenka and was sailing for the whole summer from Vilnius to Kaunas, also carrying passengers from Vilnius to Verkiai. Unfortunately, navigation on the Neris lasted only for one season because in Kaunas blocks of ice made holes in the sides of the steamboat. Therefore, 'Neris' has never returned to Vilnius.

The steamboat 'Kęstutis' was sailing on the Nemunas for a long time (Kirkor 1882). It is worth noting that the first shipping centre in the Nemunas river basin, Water Transport Board, was established in Gardinas. In 1914, a river port was built here. Besides, a foreign businessman, O'Brien de Lacy, created a ship-building yard not far from there, in Pinsk. Later, it was expanded and transferred to Gardinas. Some of the first new ships were launched and the old ones were repaired there. They were given fine Lithuanian names, such as 'Birutė', 'Bajorė', ('Bojarinia'), 'Dievaitis' ('Dewaitis'), 'Kęstutis' ('Kiejstut'), etc. In the 20th century, a real steamship boom has begun¹².

12 It is sufficient to note that before the World War II, 31 passenger ships were moored in the Kaunas river port. They carried holiday-makers, as well as the residents of large and small towns situated on the Nemunas, including craftsmen, merchants and farmers.

At the beginning of the 20th century, there were two passenger shipping routes in Vilnius. One of them began at the centre of the main port and led to the present The Wroblewski Library of the Lithuanian Academy of Sciences and, further, to Verkiai (with landings on the testing ground in Šiaurės miestelis (Northtown), Kalvarija and Valakupiai). Another route led to Nemenčinė, a famous health resort area at that time, visited by many Russian high-rank officials and rich Jewish holiday-makers.

Three steamboats called 'Gardinas', 'Žvaigždė' and 'Kronprincė' carried them there. On the short route, the ships made 12 voyages a day. The first-class ticket for the voyage on this route cost 35 kopecks, while the second-class ticket cost 20 kopecks. The steamboat 'Kronprincė' made one voyage to Nemenčinė a day, which took three hours.



Fig. 4

The first steam ship in the river Neris

Under the rule of Poles, the navigation on the Neris was very intense. According to the statistical data, the number of passengers carried by ships was almost equal to that carried by buses, taxis and phaetons and made 105 thou. people a year. In 1923, three steamboats sailed under the Polish flag. Two of the steamboats ('Žvaigždė' and 'Gardinas') were mentioned above and by that time belonged to H. Janowicz, who renamed them to 'Kurier' ('Courier') and 'Sokół' ('Falcon'). The other steamboat, 'Śmigły' ('Pliant'), belonged to K. Borowski. These steamboats used to make 8 voyages on workdays and 16 voyages on the days off from the city centre to Verkiai. A larger steamboat, 'Pan Tadeusz', used to make 3 voyages on workdays and 6 voyages on the days off from the second landing in Pospieška (at the end of Antakalnis). It is believed that in the 40s the steamboat 'Vilija' was also sailing the Neris.

Just before World War II, the company of the Janowicz brothers bought an imposing two-deck recreational steamboat, 'Sobieski', which used to sail to Verkiai. It had passenger cabins of various classes and a buffet where passengers could order soft drinks, ice cream and even hot snacks. The steamboat used to make two voyages a day, but only on holidays.

According to historian M. Gajewski, after the war, in 1948, three repaired steamboats called 'Spartak', 'S. Nėris' and 'Falcon' were sailing on the Neris. He thought that those were the above mentioned boats (two of them renamed again and the third one retaining its old name) (Gajewski 2010). The 50 year old steamboats ceased their work in the period of 1955-1956, when the building of 27 m long passenger ships with 'Moskwich-544' diesel engines was started in the Kaunas Winter Port. The new ships could carry up to 133 passengers and their speed reached 19 km/h. The ships of this type sailed on the Neris, Nemunas, Kaunas Reservoir and the lakes of Trakai. The Vilnius steamboat line had five boats of this type named 'Tashkent', 'Ryga', 'Kiev', 'S. Nėris' and 'Vilnius'. At a certain period of time, only three of them were used, while two others were being repaired. They were sailing on the route from the commonly used landing to Valakupiai and to the Vingis Park (until 1974, when the Neris became shallow due to the destructive actions of Byelarussians). Now, only one of these ships, 'Ryga', makes short voyages during the summer.

The role of the Neris River in the urban composition of Vilnius

For many centuries, Vilnius has had only one bridge. Boats and rafts used for the communication between the banks of the river (and two parts of the city). According to the data of the year 1832, there were already nine of them in the Vilnius region. This was also the reason why the city did not grow on both sides of the river. Until the 19th century, the buildings concentrated only on the left bank. The right bank of the river had only a few buildings, and one of them was the St. Rapolas church. The city had not expanded down the river either. The area on its left bank was 'closed' for a long time. Below Lukiškės and above the Vilnia's mouth there were only some poor villages along the Neris River. This area was attractive only to the owners of breweries, landings, timber yards, small factories, etc., but not for those who could build luxurious palaces. As concerns its compositional structure, Vilnius was expanding 'with its face averted from the river', as it is called in the theory of urban development. Beside the above-described factors, there was another reason for this type of city development. The fact is that, until the beginning of the 20th century, the road or trail of 10 *sieksniai* (fathoms) on each bank of the shipped river, canal or other waterway, including the Neris, belonged to the state, according to the Statute of waterways, which was valid in the Russian Empire for several centuries. This area called '*bichevnik*' (towpath) was required for '*burlaki*' (barge haulers, who pulled boats or ships upstream). This zone on the bank had to be free, not planted with trees or bushes and have a gentle sloping to the water. It was only allowed for people to repair boats, store cargo, tie up rafts and spend the night there. This requirement prevented from 'front development' of the riverside territories in many cities, as well as the provision of embankments with the equipment required for recreation and promenades in many cities. It should be stated that despite its long history Vilnius could never be truly characterized by such urban development concepts as 'embankment-street', 'embankment-square', 'embankment-city park' or 'embankment-beach' (Grunskis 2004). However, these characteristics make most of the world cities and towns more beautiful and attractive.

T. Grunskis and L. Nekrošius, who studied the conditions of sociocultural development of the embankments of the cities situated on the river banks or the seashore, gave their seven types, based on the embankment typology offered by C. Moughtin (Moughtin 1999). Though the authors do not mention the above '*bichevnik*' requirements, the conclusion can be drawn from the implications of their paper that the functional and compositional connection between Vilnius and the river can be best achieved with the variant of a riverside city, 'turning its back to the river'.¹³

Conclusions

1 The Neris river played a very important role since the establishment of Lithuania's capital, Vilnius and in the years of its further development. Its ford ("brasta" in Lithuanian), widely known in the ancient ages, had existed not far from the castle for a long time (until the first bridge, the predecessor of the current Green Bridge, was built in this place) and was an important place through which numerous ways linking southern and northern parts of Lithuania passed. For many centuries the Neris river has been heavily navigated and has become one of the main waterways in the country.¹³

2 In fact, in some regions of the European countries, shipping by the inland waterways makes about 40 % of all forms of transport. For example, transporting cargo via the inland waterways in Belgium increased by more than 50 % in 1997-2004, while in France, it exceeded 35 %. Now, 12.5 thou. ships with cargo-carrying capacity equal to that of 440 thou. trucks are used. On January 17, 2006, the European Commission officially announced in its communique that insufficient capacity of land transport, as well as traffic jams and delays, produce a negative effect on the competitive ability, the environment and quality of life. Therefore, the EU supports a transfer to more energy-efficient, cleaner and safer transport facilities. In this context, the role

¹³ This is a common characteristic of a riverside city. This feature, 'a town turning its back to the river', was described in many books and examined in the urban development studies (Wierzbicka 1996; Szwed 2014).

of inland water transport becomes more important. The Commission emphasized the need for taking measures to ensure a more effective use of market possibilities for increasing the attractiveness of shipping by inland waterways. It should also be noted that the pollution produced by inland water transport makes only two-fifths of that produced by the automobile transport, while its safety is 2.5 times higher than that of the above land transport. It is believed that inland water transport and short-distance shipping, as well as rail transport, can largely contribute to maintaining a sustainable transport system (Lapinskas 2009).

3 There is hardly any other capital city in the world, situated on both sides of the river like Vilnius, which would not take advantages of these favourable natural conditions in the 21st century. This feature of a city or a town was considered to be important in all times, and architects and designers tried to use it for the public interest. Thus, the schools of architecture in the West have a special programme of studies called 'water front architecture'. Therefore, it seems that, in spite of the complicated condition of the Neris riverbed, it would be possible to renew a more intense use of the available resources, which was described above, based on the much more effective water resource management and navigation equipment.

4 To create the conditions in the lower reaches of the Neris for intense shipping of freight and passenger vessels between Vilnius and Kaunas is hardly possible because it would require large investments. The situation is, however, different with shipping on the Neris within the territory of Vilnius. The Neris stretch of 7.5 km between Valakupiai and Žvėrynas bridges has already been declared to be the inland waterway of great importance to the state. According to the long-term plans, the Neris stretch from the Verkiai Regional Park to the Lazdynai Bridge could also be used in the future for transporting tourists, holiday-makers and other people by ships and for recreational purposes. There are many other plans, projects and visions, which require only some determination, initiative and finances.

5 The realization of clearly defined original ideas of reviving the traditions associated with the Neris and its embankments can help to make them attractive for the inhabitants and guests of Vilnius, the capital of Lithuania and resume some of old historical traditions.

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Reference to this paper should be made as follows: Vanagas J., 2015. Navigation on the Neris River and its importance for Vilnius, *Journal of Architecture and Urbanism* ...

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