VII. VIKINGS: WARFARE AND TRADE FROM THE BALTIC TO THE DANUBE

ARMED AND EXPECTED. TRADERS AND THEIR WAYS IN VIKING TIMES

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Abstract

The Baltic traders' stimulation for trading with foreign countries was caused by the shortage of iron, the necessity to obtain good arms, salt, metals for bronze manufacturing, and silver. Apart from traditional goods, like slaves, furs and honey, traders from Scandinavian and west Slavic centres were interested in rye, horses of local breeds, and Baltic ornaments.
Aquatic routes up and down rivers were convenient and fast in winter. In Viking times, traders could reach the neighbourhood of Kaunas, trading there for several days, and get back to the Baltic Sea in about 20 days. Navigation away from Kaunas upstream included dugouts, primitive flat-bottomed boats and even rafts. Sailing up and down the river can be proved by information about sailing in Crusaders' times (13th and 14th centuries).
Travelling in foreign territories was dangerous, so traders were usually armed. Arms were discovered in about 60% of the so-called "traders' graves" of Lithuanian coastal cemeteries.

Key words: Baltic tribes, Viking times, trading manner, aquatic routes, Nemunas (Memel) river.

In the second half of the tenth century graves with balances and weights for weighing silver are traced in Baltic territories. Most of them are discovered in the southern territories of the Curonians (Kuncienė 1977, p.133, map 73). Their appearance coincided with the advent of silver bullion in Lithuania. Balances, with the help of which the weight and value of articles was defined, are treated as a hallmark of traders' graves. The fact that balances are abundant in the graves, settlements and hill-forts of Western Balts and very rare among remote tribes living far away from the sea, is a manifestation of two things. Firstly, the custom of putting balances and weights into graves in the East Baltic region was spread in areas under Scandinavian influence only (Leciejewicz 1995). Secondly, inland trading relations started later in comparison to coastal areas.

Information about traders in Baltic territories in Viking times is poor. During the exploration of cemeteries in southern Curonia (Mėguva Land) it was found that "traders' graves" are different in every place. Most graves with a balance and weights were discovered around Palanga, whereas elsewhere they are rare. Most Palanga "traders' graves" are dated to the 11th and 12th centuries. An examination of their burial items makes the stereotype of a rich, armed trader spruced up with silver doubtful. It appeared that not every grave with a trader's attributes was rich. Some of them contained no weaponry, even no spearheads! All these graves of "armless traders", with only one exception, were poor in burial items. Therefore, it is possible to conclude that wealth and social differences among this thin layer of traders in the tenth to 12th centuries were evident. Graves without weaponry probably belonged to representatives of a lower social class involved in trading. They had to be reliant on people of higher social status (Žulkus, Klimka 1989, pp.29-35).

The available material allows us to think that, starting with the 11th century, a thin layer of free, independent traders was forming in coastal areas (Žulkus 1997, p.292; 2004, p.157). On the other hand, trading, most probably, was not the only occupation of these people, as there was no institution of traders-professionals in Baltic societies, as well as Scandinavia, back in the 12th and 13th centuries. Representatives of different social layers were trading there (Nedkvitne 1993, p.649; Leziejewicz 1995, p.61).

A Viking trading manner among Baltic tribes has not yet been investigated and we can only shape some of the questions, though answers to them are not possible. More interest was directed towards trading routes, in eastern Baltic territories in particular (Kuncienė 1972; 1981; Mugurėvičs 2001, pp.370-377). Trading routes

of Viking times in Western Lithuania are reconstructed with respect to the location of more significant centres, to find spots of hoards and imports, balances and weights (Žulkus, Klimka 1989, p.56ff.; Genys 1996). While identifying trading routes, written sources were also employed, for example, a description of "Crusaders' routes" in the 14th century (*Wegeberichte*). Route mapping was not always done with respect to the geographical peculiarities of sites and social geography of the time. Besides, "Crusaders' routes" should not be identified with "traders' routes". Crusaders were travelling to rich Lithuanian centres for marauding. They were travelling secretly, choosing direct, hardly passable routes, bypassing smaller settlements, and every so often avoiding traditional routes.

Traders' routes, on the contrary, led through inhabited areas, where their articles and they themselves were safe, where they could find shelter and opportunities for trading. Besides, "straight" routes usually used to be longer due to the huge woodlands[1] and swamps. Routes along river banks were not always easy. Traders used to avoid these huge woodlands and swamps, choosing instead routes from one populous settlement to another. In Viking times, unpopulated, almost inaccessible areas existed between different tribes (usually they were watersheds, inter-tribal deserts) (Žulkus 2004; Šimėnas 1997). Such a desert of 40 kilometres in breadth stretched between the Curonians and Samogitians. Smaller ones separated different territories and lands. It is evident that there were no trading routes there, they reached another tribe by moving from one important centre to another. Borderline centres were also good trading sites.

Both long-distance and local traders could start off on long journeys by exchanging, trading and storing up the most saleable articles. They did not necessarily have to choose the same route on their way back. Starting their journey from one centre in the summer time, they travelled overland and went down rivers, reaching inter-regional and remote trading centres in tribal peripheries around big rivers and the coast, where they used to meet foreign traders, selling their articles for silver or exchanging them for other valued articles. Before coming back home they could make a big circle.

It is already traditional thinking that rivers used to be basic trading routes, with traders travelling both on the rivers and on their banks. Due to the specific way of travelling, aquatic routes along large rivers are more complicated for archaeologists to identify.

[1] Lithuanian woodlands in the ninth to 12th centuries were two to three times larger than they are now. Around 800 AD woods occupied about 73%, around 1000 AD about 61%, around 1100 AD about 55%, in 1980 about 27.6% of the entire territory (Bumblauskis 1995).

Water routes, both downstream and upstream, were convenient and fast in winter time. Besides, sledges allowed the carriage of bigger loads. Viking settlements in which archaeologists discover evidence of trading are very often located close to small rivers, where ordinary travelling was next to impossible. In winter time, frozen rivers used to become a convenient network of routes, contributing to the development of tribal and intertribal trading. The ice of the River Nemunas, as a convenient winter route, was also used later. In 1414 the French knight Ghillebert de Lannoy made use of sledges and left Kaunas to reach Prussia (Ragainė/ *Ragnit*) along the River Nemunas (Dvi Žilibero de Lanua kelionės į Lietuvą 1983, p.50).

The basic advantages of water routes used to be, and still are, two: they are shorter and cheaper (for shipping larger quantities). Travelling over water also included some drawbacks: storms in the open sea and lagoons used to be dangerous both for cargo and traders, and the possibilities for travelling up rivers were limited by strong currents and shallow waters. Besides, water travel (including both on the sea and shallow rivers) required boats of different types. Therefore, traders who wanted to start from coastal areas and reach inland trading centres, coming back to the coastal centres afterwards, had to choose combined routes and transport. Such a way of travelling is recorded in Roman sources. Combined land-and-water transport by the rivers Rhine or Danube was the cheapest and most effective method along the waterways (Teigelake 2003, p.41).

Travelling down a river used to be rather quick, not requiring good boats. For that purpose, dugouts or even temporary navigation devices, like rafts, were employed. Such a method of travelling in dugouts along the River Dnieper was described in the middle of the tenth century (Kirpichnikov *et al.* 1986, p.232f.). This tradition survived and later, in the 16th century, when cereal used to be transported from Vilnius to Prussia along the Neris and Nemunas in jerry-built boats, which did not come back, being sold together with the cargo as processed wooden material (Willoweit 1969, p.299).

The opportunities to sail up Lithuanian rivers have not yet been investigated. Still there are no detailed discussions regarding the feasibility of the River Nemunas for navigation in Viking times, though there were no doubts about the river as a trading route. Birger Nerman believed this route could take the Swedes to Russia (Nerman 1934, p.374). Nowadays the significance of the Nemunas river, as a basic water trading route, is treated rather sceptically (Genys 1996). While making a general evaluation on the significance of the river for Lithuanian and neighbouring tribes (Žulkus 2004,

p.125-131), the navigation opportunities were not investigated. Looking for answers to this question, it is necessary to evaluate the hydrological factors, the ships' facilities and the navigation traditions of the time, and the situations of hill-forts and settlements along the rivers.

The Nemunas and other smaller rivers of the Western Balts, the Prussian Prieglius (*Pregel*), the Curonian Venta, Minija and Dangė, the Samogitian and Scalvian River Jūra, flow directly or via lagoons into the Baltic Sea, or they are tributaries of the Nemunas. The lower reaches of these rivers are in a coastal plain and a gradual incline is characteristic of all of them. The speed of the Nemunas after Kaunas does not exceed 1 m/s, while in the lower reaches and the delta it is twice as slow. The speed of the current in the lower reaches of the Minija, a tributary of the Nemunas, is only 0.1–0.2 m/s. The speed of the current in the lower reaches of the Jūra, a right tributary of the Nemunas, is only 0.2 m/s, the Prieglius 0.2–0.7 m/s, the Akmena-Dangė 0.2–0.4 m/s, in rapids up to 0.7 m/s, and the Venta only 0.1–0.4 m/s (http:/www.primate ia.infovx.net.lt).

Speeds and flows of rivers, like the sea level, changed subject to the alternations of the climate. It is well known that in the tenth century the level of the Baltic Sea arose up to one metre, compared to the present, but in the 11th century it dropped again. This rise of level had no significant impact on the flow speed in the lower reaches of the above rivers, as their levels also increased[2]. Thus, flow speeds in the tenth to 12th centuries were almost the same as they are today.

We know nothing about Viking Period boats of the locals and their sailing on the Nemunas. Probably sailing up the river could only be poorly modelled due to the data about the boats of the Vikings. There were differences in seagoing and river boats. Cargo boats of Knorr type, belonging to the Vikings, were from 13.5 to 17.5 metres in length and 3.3 to 4.5 metres in breadth. They had a tonnage of about 20 to 25 t, with a draft of about one metre. Warships were longer (from 16m to 36m) and their draft could exceed two metres. Boats of the western Slavs were smaller (about eight to 14m) and their draft was only 0.5m. They were sailing-boats, using oars only when manoeuvring, entering harbours, or going against the flow. Knorr type boats had three to six pairs of oarsmen, though three persons were enough to control the sails and sometimes only four or five persons used to sail in the open sea. The "long" warships had a crew of about 100, and 78 of them were oarsmen. The Viking-type boats with sails, recently designed in the Roskilde shipyard, were able to sail at a speed of over 12 knots. It was usual practice that each day sailors managed to cover a distance of 100 to 120 kilometres and about 40 to 60 kilometres when using oars. The cruising speed of cargo boats with sails was about six knots. Rowing all day long, it was possible to reach an average speed of three to four knots (Herrmannn 1982, p.117 and 122-123; Haasum 2001; http://www.greenland-guide.gl/leif2000/). The *Ottar*, a reconstructed Skuldelev 1 type boat, averaged four knots. The daily average distance was 86.4 nautical miles (Englert, Ossowski 2004, p.92).

It was possible to reach some rivers via lagoons. The mouth of the Prieglius (*Pregel*) could be easily reached crossing the Aistian Lagoon (*Frisches Haff*), that of the Nemunas via the Curonian Lagoon. Both these freshwater lagoons are large but shallow. It was also possible to reach some of them via several straits. In ancient times lagoon-type lakes were larger in numbers. Grobiņa, the best-known Curonian trading centre and a colony of Swedish Vikings and traders, was located next to the Ālande river, just a few kilometres from a large lagoon-type lake, which in old times used to unite the lakes of Tosmare, Liepāja, Meeke and Pape, and reached the open sea in a few places (Žulkus, Springman 2001, p.170ff.).

The Curonian Lagoon is more shallow in the middle and very shallow in the northern part. At the end of the 19th century, depths in the southern part reached seven metres (the average was five), whereas between Nida and Ventės Ragas it was just 1.5 to three metres (Willoweit 1969, p.21). Strong winds in the Curonian Lagoon rapidly create short and steep waves, which are very dangerous for small boats. In abrupt storms, smaller boats would sink there. At the beginning of April 1313, when Crusaders' boats were sailing to build Christmemel castle on the Nemunas, "... many boats, loaded with food and other commodities necessary for the construction of castles, sank in the bay, four brothers and four hundred men drowned" (Petras Dusburgietis 315 (308), p.261f.). Besides, stony shallows would stop the way to the river mouth. They were Ežia, sailing from the south, and Kalva, sailing from the north.

Crusaders, while fighting the Lithuanians, would sail across the Curonian Lagoon to the Nemunas not only from Klaipėda, but from the southern part of the bay as well, probably from Labiau and Neuhausen, eg Marshal Heinrich in the spring of 1319 (Petras Dusburgietis 336 (329), p.271). Traders' boats from Viking times would take almost the same routes. Presumptions that in the times of the Vikings and the Order the

[2] The Neris contributes most to the Nemunas, as it is influenced by climatic alternations in the highlands of Central Russia, its water levels being correlated to the Volga (= water levels of the Caspian Sea). In the tenth century the water level in the Caspian Sea rose up to three metres (Gumilev 1966, p. 81–90).

Nemunas could be reached by boats in the neighbourhood of *Linkuhnen* (Tilžė/*Tilsit*), navigating the Gilija (Gilge), an arm of the Nemunas, bypassing the middle section of the bay and dangerous spots around Ventė cape, are groundless (Springmann 2005, p.173f.). The first attempt to connect the Gilija and the Deimė (*Deime*), making a proper navigation canal, was made in 1409, but the project was implemented only in 1697 (Willoweit 1969, p.142). In medieval times, the Nemunas could be reached from the bay via one of three basic arms of the river mouth (cf Wapowski 1526; Olaus Magnus 1539). To control the route, back in 1360 the Order erected *Windenburg* castle in Ventės Ragas, and in 1366 *Warruss* (*Variskin*) castle, which probably used to be on Rusnė Island, around Vorusnė settlement (Willoweit 1969, pp.93 and 129).

Sometimes the name of Russ (Rusnė), an arm of the lower reaches of Nemunas, is also related to the Vikings. In the upper reaches and midstream, the largest Lithuanian river used to be called the Nemunas. According to the bull of Pope Innocent IV of 23 August 1253, it was called Memole (*Memole vulgariter appelatum*) (PUB 1. H. 1. Nr. *275*, 207) by local inhabitants. Below Tilžė the river splits into a few arms, the main one of which in old times used to be called Russ (recently Rusnė and Atmata).

On the eastern coast of the Baltic Sea larger rivers usually flow from east to west, with westerly winds prevailing in the summer time (Stankevičius, Tilickis 2003, p.22). Therefore, it was possible to sail up rivers like the Nemunas, Jūra, Dangė, Prieglius and Venta, when the wind was favourable with the speed of the flow being about 1 m/s (about two knots), sailing up the river was more complicated even with the additional employment of oars, while a current of 2 m/s (about four knots) was hard to overcome. The flow of coastal rivers was slow; therefore, it was possible to cover long distances up the river, sailing with Viking-type boats. In coastal areas, compared to inland Lithuania and Latvia, the network of average rivers (Lielupė, Venta, Minija, Jūra, etc) is larger (Gailiušis *et al.* 2001, p.90f.). Some of these rivers are rather wide and deep enough in their lower reaches (the Nemunas is about 500 metres wide, higher about 100 to 120 metres in width, the Venta 200 metres in width, up to nine metres in depth, the Jūra up to 40 metres in width (Lietuvos upės. http:/www.primate ia.infovx.net.lt).

We are mostly interested in an investigation of the navigation possibilities on the Nemunas[3]. The possibility to go against the current under sails or using oars on small and large rivers depended much upon the season (stream strength, discharge). Regular navigation on the Nemunas was possible after the spring floods until winter. Floods repeatedly return in March and April, the water level may rise 0.4 to 2.5 metres and drown huge areas, starting from the Jūra (81.2km from the Nemunas' mouth) and stretching down to the Curonian Lagoon. The flood width of the right floodplain varies up to six kilometres (Ascila *et al.* 2002). From the spring floods to summer the level of the Nemunas and other coastal rivers changes greatly (Gailiušis *et al.* 2001, pp.129, 174, 241, 265-266 and 285).

The Nemunas used to be and still is a relatively calm and deep river. Its sinuosity coefficient (a major indicator of a slow current) in the upper reaches is 1.86, midstream 2.26, in the lower reaches only 1.2. Most of its bends are sharp and wide, whereas the lower reaches are straight. The average depth of the Nemunas cross-section varies from one to three metres. The breadth in the higher reaches and midstream is an average of 250 metres, in the lower reaches 200 to 400 metres (Gailiušis *et al.* 2001, pp.96 and 101).

On the other hand, navigation on the Nemunas in midsummer used to be problematic due to the shallows. According to records from 1873, the channel below Kaunas was only six to seven metres in width, the depth only 1.15 metres (except at the mouth of the Neris, with two metres' depth). Below, the channel is natural and irregular. The depth is only around one metre. At the confluence with the Dubysa, stones make the flow more rapid. Around Jurbarkas there used to be sandy shallows and the depth did not exceed one metre. The depth between Kaunas and Smalininkai varied from 1.4 to 1.1 metres. Down to Tilsit it was deeper (KJM Kadrai 75–81, after Deleckienė 2003).

Due to shallows and the narrow channel, lagoons and rivers were limited; therefore, only smaller and manoeuvrable boats could be employed for travelling. For voyages on rivers and lakes, small boats of seven to eight metres in length could be most appropriate. The minimal required depth of a river varies, then, between 80 and 90 centimetres for river boats. For small dugouts 50 to 70 centimetres was enough (Teigelake 2003, pp.56 and 73). Written sources contain no information about the river boats of Lithuanians. From indirect sources, it is possible to conclude that the boats were not very large. In 1313 "six hundred or more men" in one hundred Lithuanian boats sailed against the Crusaders around Veliuona (Petras Dusburgietis 318 (311), p.263). This means six or seven armed men were sailing in one boat.

Apart from archaeological data from cemeteries and settlements, there are no other direct arguments or writ-

[3] Written sources from the Crusaders' times do not tell us of the historical evidence about navigation on the River Pregel (Petri de Dusburg).

ten sources about traders coming to Kaunas along the Nemunas in Viking times. On the other hand, navigation up and down the River Nemunas in Viking times could be confirmed by navigation in Crusaders' times, ie in the 13th and 14th centuries. In 1274 (or 1275) the pagan castle of Ragainė (*Ragnit*) was attacked from boats by "plenty of brothers and a thousand men" (Petras Dusburgietis 182 (177), p.192). In 1298 a squad of Crusaders from *Ragnit* castle, built by the Order, navigated to Junigeda castle in the neighbourhood of Veliuona below the Dubysa and *Pisten* (Pieštvė) castle in the confluence of the Dubysa and Nemunas (Petras Dusburgietis 271 (264), p.240; Batūra 1985, p.415, 416 and 417), 92 kilometres and 100 kilometres from Ragnit respectively. *Junigeda* and *Pisten* castles were attacked by boats in October 1315 and the beginning of April 1319 (Petras Dusburgietis 325, 336 (318, 329), pp.267 and 271).

The Lithuanian castle *Colayne* (Kolainiai) and the village Romene, Romeyn (Romainiai) were attacked on 12 May 1290, navigating from *Ragnit* up the Nemunas (Petras Dusburgietis 239 (232), 259 (252), p.222 and 233). *Colayne* stood in the confluence of the Mituva and Nemunas, 57 kilometres from Ragnit, Romainiai at the confluence of the Nevėžis and Nemunas, close to Kaunas, 133 kilometres from *Ragnit* (Batūra 1985, pp.415 and 418).

In 1313, after building *Christmemel* castle (now Skirsnemunė), 68 kilometres upwards from Ragnit, plenty of Crusaders' boats approached it (Petras Dusburgietis 315 (308), p.261; Batūra 1985, p.423). In the summer of 1313 they sailed up the river to (Bisena) Bisenė castle (Petras Dusburgietis 316 (309), p.262). Such intensive navigation required knowledge of the river (channels in riffles, channel signals). Dangerous spots close to trading centres could be marked already in Viking times.

Experience of the Crusaders demonstrates that navigation on the Nemunas could start in April, when the spring floods abated, and finish in the autumn, when the river froze. On the other hand, the spring floods provided the opportunity to reach locations around smaller rivers by water routes. It is unknown whether traders would sail during floods, but the Order probably used to take a chance while attacking Scalvian and Lithuanian castles. Probably voyages took place in the summer: for example, it is doubtful whether there were any attempts at travelling up the Dnieper in the high water season (Edberg 2003, p.117f.).

Let us come back to Viking Period sailing from coastal trading centres across the Curonian Lagoon and up the Nemunas.

The calculated speed of Viking Period sailors on the open sea could hardly be applied making calculations of voyages on rivers. Russian riverboats could daily cover only 30 to 35 kilometres (Edberg 2003, p.118). According to other information, in Roman times river transport could daily cover a distance of 30 to 40 kilometres (land transport distance per day 18 to 20km, sea transport 45 to 65km) (Teigelake 2003, p.73). It is evident that the sailing speed depended much on the river's breadth, depth, obstacles and winds. River transport could carry 60 to 140 cwt (hundredweight) of cargo, land transport only five to six cwt, sea transport even 600 to 2000 cwt. The transportation of cargo by inland water routes was ten times cheaper than by overland routes. Transportation by sea was 60 times cheaper than overland (Teigelake 2003, p.73).

Viking-type boats, leaving with sails from the Prussian trading centre Kaup or from the Klaipėda neighbourhood in the morning, could easily reach the surroundings of Rusnė (in the delta of the Nemunas) by the evening (Plate V: 1). The voyage was longer when strong westerly or southwesterly winds were blowing, as it was necessary to sail along the coast of the Curonian Spit before crossing the bay. In front of the mouth of the Nemunas, on the Curonian Spit, is Bulvikis Bay and Bulvikis cape. This is the only place-name of Lithuanian coastal areas containing vik. This place is not yet explored. There is an unchecked assumption that it could be a small Viking Period settlement, where boats waited for favourable weather to sail towards the mouth of the Nemunas. Probably there was a pagan temple (?) and a trading settlement on the island of Rusnė (*Russ, Rusna, Russe*) (Daukantas 1976, p. 419). The flow in the Nemunas delta is very slow: in Rusnė it is 0.6 m/s, in Atmata 0.2–0.3 m/s. The speed of the flow in the Minija, a Nemunas tributary in the delta, hardly reaches 0.1–0.2 m/s. Upstream about 100 kilometres the incline is absolutely even (Macevičius 1996, pp.11-17). Under such conditions, and with the presence of a favourable wind, it was possible to cover a distance of 60 kilometres (employing sails) within two days, travelling from Rusnė in the mouth to *Linkuhnen*, or even to the confluence of the Jūra and Nemunas (about 76km from the mouth), where a convenient anchorage around Birštoniškiai settlement and hill-fort was likely to be. *Sarecke* castle was likely to be there (Šimėnas 1990).

From this point to modern Jurbarkas, where the Mituva flows into the Nemunas (about 50km), part of the voyage was still possible with sails. A trading centre was likely to be there, near Viešvilė (Tautavičius 1977, p.122; Bertašius 2001). Up the river[4] to the next

[4] Flow speed in mid-stream Nemunas is higher, though usually it does not exceed 1 m/s (Macevičius 1996, pp.11-17).

camp, to the confluence with the Dubysa (about 40km) the voyage, due to sandy shallows, was possible only with oars. From there, the densely populated territories of central Lithuania with hill-forts and settlements start (Bertašius 2002, p.52; Baubonis, Zabiela I 2005, pp.214-241). In the next two days it was possible to cover a distance of 50 kilometres and reach the confluence of the Nevėžis and Nemunas, and even modern Kaunas. Further up, to the confluence of the Neris and the Nemunas (51km), sailing was more complicated due to shallows and the higher flow (Plate V:1).

Therefore, it was possible to start in the Baltic Sea and reach the surroundings of Kaunas in eight to ten days, sailing in the daytime only. Kaunas was likely to be the final destination for most traders travelling in boats. The complex of archaeological finds in the neighbourhood of Kaunas suggests that it used to be an important administrative, confessional, handicrafts and trading centre. Finds in cemeteries, in Marvelė in particular, witness the concentration of imported metals and articles, silver ingots, chopped silver, balances and weights (Bertašius 2002, pp.151-160, 206-212; Baubonis, Zabiela 2005, pp.296-347). Settlements on the riverside are not yet explored; therefore, there is no information about probable equipment of the harbour and finds, including boats from Viking times.

The voyage back to the Curonian Lagoon could take three to four days, a stronger contrary wind could extend the voyage. No doubt, sailing to and from Kaunas for exchange and trading purposes used to be done by means of dugouts and, on the way back, by other temporary devices.

In 2003 an expedition of the Lithuanian Maritime Museum sailed downstream from Kaunas to Rusnė in a *kurėnas* (*Kurenkahn*), a restored fishermen's boat from the Curonian Lagoon. They used sails and covered the distance in four days (sailing only in the daytime, counting pure sailing time only). A cross wind was blowing all the time (personal communication, Romualdas Adomavičius, leader of the expedition). There were no riffles on the route, though big stones, tree trunks and shallows were potential and dangerous obstacles in shallow waters. These obstacles used to be dangerous in particular to bigger boats. In 1829 a voyage on board the *Wittine* (a cargo boat with upright sail, 53m in length and 8.1m in breadth, draft loaded up to 1.2m), known on the Nemunas from medieval times was described. It covered a distance of 51 kilometres from Smalininkai to Tilžė in only nine days. Cargo boats used to be pulled up the river (Litwin 2000, p. 375, 384, 389).

An analysis of the travelling possibilities along the Nemunas and parallels would confirm that in Viking times it was relatively easy to reach the neighbourhood of Kaunas in small boats directly from the sea. It would be much more complicated to do it with big cargo ships. In view of the fact that there was no shipping of silver, a commodity occupying a tiny space and weighing little from central Lithuania, it could be concluded that bigger cargo ships or rafts were necessary for the delivery of merchandise down the river. Traders from remote countries could make use of bigger local tonnages after they had reached the neighbourhood of Kaunas. They were employed to deliver merchandise down the river to trading centres, which were easy to reach by bigger cargo ships. It could be the neighbourhood of Tilžė (*Tilsit*, presently Sovetsk).

Around Tilžė and on both banks of the Nemunas, specific place-names have been traced long ago. According to Aschmann, most of them retain the Viking name (variags). For example, *Warruss, Swarren, Skulbeatwarren, Plauschwarren, Pillwarren, Leitwarren, Swarreitkehmen, Warrischken, Wartulischken et ali*. Aschmann thinks *Var* means *Wehr* (earthwork, armament), as the Vikings were armed, and travelled in sea boats from Sweden, marauding and trading (Aschmann 1963). The root-*var* could be related to Swedish *vara*, Danish *vare*, meaning "article". Linguists give no convincing explanation for the hydronym with *var* in the Baltic languages (Vanagas 1981, p.362f.). In the 11th century *Linkuhnen* trading centre still existed in this area (Mühlen von zur 1975, p.53; Bertašius 2001, p.194). Probably it was a colony of Swedish Vikings (Nerman 1934, p.374).

Therefore, traders could reach the neighbourhood of Kaunas, trading there for several days, and come back to the Baltic Sea in about 20 days. Under ordinary conditions and favourable winds, it could take one month for Scandinavian traders to reach Kaunas and come back. Usually the trading and marauding campaigns of the Scandinavian Vikings to eastern Baltic areas used to be organized in summer and continued for several months.

A more or less regular Viking Period journey from Kaunas upwards hardly existed. These water routes were much more complicated, as a 150-kilometre section contains 16 shoals. On the other hand, between those shoals, up to the Russian trading centre of Gardinas (*Grodno*), the current is slow (Kudaba 1970, pp.27, 40-42 and 123-127). It is true, riffles, though impeding shipping very much, were not insurmountable obstacles. It is known that in Viking times river riffles or close watersheds used to be overcome by travellers. Special tracks, like those in northern Sweden, could be prepared beside the riffles, which made it possible to pull boats on rollers. Some traders' boats were too

large and heavy to be hauled overland. Even people without ships might have "changed rivers" on foot or on horseback and embarked on new boats. In northern Russia there were places where cargo was transported by horses (Teigelake 2003, p.91). There ought to be a strong motivation for such a journey. We cannot trace a similar motivation for travelling along the Nemunas in Viking times upwards from Kaunas. Eastern silver did not go along the Nemunas in such quantities as it did on the Dnieper and Daugava.

From the point of view of travelling and trading, the Nemunas appeared to be divided into two parts. In the middle of the route, the trading centres of the Kaunas neighbourhood were in a favourable situation. East of it, in the upper reaches of the Nemunas, cultural exchange with the Prussians, Curonians and Scandinavians could be done through the agency of interregional trading centres in the neighbourhood of Kaunas, as these centres were culturally influenced by the Scandinavians. Burial rites typical of Scandinavians were discovered in Marvelė cemetery. They are not identified precisely, but their existence in Viking times begs no questions (Bertašius 2001, p.201).

Navigation upwards from Kaunas, to go with the stream, involved dugouts, primitive flat-bottomed boats and even rafts. Most probably the delivery of merchandise in this section of the Nemunas took place in winter, on ice. Similar travelling in the higher reaches of the Nemunas took place in Crusaders' times. On 20 May 1295, after a military encounter in the neighbourhood of Gardin, over 150 Crusaders in boats started down the river (Fig. 1:2). They sailed almost to *Junigeda* castle (Veliuona), where they were stranded due to low waters (Petras Dusburgietis 260 (253), p.234). Down the Nemunas, for about 350 kilometres, they probably sailed in boats taken from locals, as they reached Gardinas overland.

Traders' boats could also travel smaller rivers upwards. The situation of archaeological monuments points to the existence of water and land routes extending along the Jūra and further to Nemunas. In the lower reaches of the Jūra, at its confluence with the Nemunas, a trading centre (eighth to 11th centuries) is probably to be discovered (Žulkus 2006, p.21). The Jūra was fit for navigation even in Crusaders' times. In the summer of 1307, the Order's warriors managed to reach *Putenicka* (Pūtvė) castle up the Jūra, using boats with sails and oars (?) (Petras Dusburgietis 298 (291), p.254; Almonaitis 2007, p.52). This castle probably stood on the Akmena, about 15 kilometres from its confluence with the Jūra (Batūra 1985, map). It is not clear whether they reached *Putenicka* castle itself or the confluence of the Akmena and the Jūra (over 72km from the confluence of the Jūra and the Nemunas (Gailiušis *et al.* 2001, p.567). They could reach such places in small boats[5]. It is true, writing about onslaughts on Gediminas' castle on the Jūra, upstream from its confluence with the Akmena (Batūra 1985, map), Petri de Dusburg mentions only overland Crusades (Petras Dusburgietis 249 (242), 332 (325), 351 (344), p.269, 278 and 328).

No doubt, with a favourable wind, the Nemunas, as well as smaller rivers, like the Venta, Prieglius, Jūra and Akmena-Dangė, were suitable for travelling on in small boats. Larger boats were not suitable on these rivers for long-distance sailing. The Crusaders' attempts to bring bigger warships to the Nemunas were not successful either. Apart from small boats, in 1313 the castellan of *Ragnit* built a big warship "with walls" (*cum meniis*). As soon as it reached *Junigeda* (92km up the river), the Lithuanians attacked it and burned it down (Petras Dusburgietis 317, 318 (310, 311), p.263) (Plate V:2).

The economic importance of trading and traders in different societies in Viking times was different. Nils Blomkvist, writing about Scandinavia at that time, concludes that "traders in the early feudal system were necessary, though their role was not dominant" (Blomkvist 1998, p.15). Both interregional trading and trading with other countries were important for the western Balts in Viking times. Trading had to assist them in providing luxury goods, ornaments and armaments, rare metals like silver, and raw materials for bronze production, but also important goods like iron and salt. Lithuania was rich in swamp ore resources, but it was short of iron. Lithuania may be assigned to low-scale iron metallurgy (Salatkienė 2007, p.34). It is believed that in the middle of the first millennium less than half the iron consumed in the territory used to be smelted here. Local iron metallurgy went down significantly in Viking times (Navasaitis 2004, p.130), which made imported iron important in particular. The Western Balts were mainly supplied with Scandinavian iron. Iron trading via traditional water and overland routes was not interrupted, even during the Crusaders' conquests. In 1218, Pope Honorius III banned the sale of iron, armaments and salt to the Prussians (Popiežiaus bulės 31, p.75). In 1262, Pope Urban IV insisted upon the punishment of Linköping traders supplying Livonian and Prussian pagans with arms, iron and other goods (Popiežiaus bulės 123, p.237f.). Other sources from the 13th century confirm the active travelling of Scandinavian, Rigan and Sambian traders across the bay and the Nemunas, trading in salt and arms (PUB 1. H. 1. Nr. *275*, p.207).

[5] The historian V. Almonaitis doubts the possibility (Almonaitis 2007, p.55).

Iron, silver, non-ferrous metals in huge amounts, and weaponry used to be delivered to the Balts from Scandinavia, the western Slavs and the Germans. It is still not clear what traders would take away from the Balts. Reference is made to amber, furs, and women slaves as traditional articles (Herrmann 1982). It is not clear what capital one had to possess to make this journey profitable. Hypothetically only, we can speak now about saleable goods. A slave cost about one mark (223 grams of silver) in Viking times, a woman slave could fetch a price of up to three marks (Steuer 2004, p.105). Due to the good price, slave trading was a profitable business, though the transportation of larger numbers of slaves required bigger ships, which could enter the mouths of larger rivers only. The neighbourhood of Kaunas was famous for its horses. While exploring the abundant horse burials of the eighth to 12th centuries in Marvelė, Veršvai and other cemeteries, peculiarities of a local horse breed were identified. They were small (120 to 136cm in height), spindle-legged horses, but very tough. Large hooves helped them to cross damp terrain easily. They were hardy, did not fear hunger and could carry heavy loads. These horses were also fit for war and work (Bertašius, Daugnora 2001, p.398; Bertašius 2002, p.187f.). Horses from the neighbourhood of Kaunas are attributed to the local breed (in Lithuanian *žemaitukai*), traced from the sixth and seventh centuries. In the Middle Ages they were known as a breed of manoeuvrable and tough combat horses (Macijauskienė, Šveistienė 2002).

It is known that one of the important trading goods in Viking times was a thoroughbred horse with bridles (Steuer 2004, p.107). There is no written material about the transportation of Baltic horses to Scandinavia as merchandise or the spoils of war. Bearing in mind the good capacities of Baltic horses, firstly of those coming from the neighbourhood of Kaunas and valued in severe Nordic conditions, it could be concluded that this trade was probable. As an argument, the horse bridle discovered in Björk cemetery (Sweden) and probably manufactured in the neighbourhood of Kaunas, could be presented (Bertašius 2002, p.194).

In the 11th and 12th centuries the Balts could already provide themselves with rye, which could also have been an export article (Žulkus 1997a, p.18f.). Archaeological material does not show that Baltic ornaments were saleable in Scandinavia and the southwestern Baltic (Žulkus 2004, p.136f.).

Probably demand on the internal market was different. Iron, imported non-ferrous metals and local amber travelled from coastal to inland centres. Besides, in some Curonian territories it is possible to identify ornament manufacturing centres (Žulkus 1991). Ornaments, some luxury items, and imported articles used to be delivered by local traders to remote territories and tribes by overland and water routes.

Arms, balances and weights used to be ordinary attributes of traders in the 11th and 13th centuries. This is why out of 18 explored graves of Curonian traders in the Palanga neighbourhood, 11 of them contained swords (most of the ninth to 13th-century Baltic swords are found in the lands of the West Balts (Kazakevičius 1996), battle-axes or spearheads. The arms in these graves prove that free traders used to be armed. Besides, trading and acquiring wealth with the help of arms was typical of the soldiering of the time. "Warriors' graves" with traders' attributes of the tenth to 13th centuries were also discovered in Palanga cemetery. It is interesting that they appeared to be in the zone of rich graves in the central part of the cemetery (Žulkus 1997, pp.289 and 292).

Commercial travelling in distant territories was dangerous, and traders were usually armed. Traders could be safe and rely on the protection of local dukes in costal trading centres and larger tribal centres. It is likely that major overland and water trading routes were also protected. Routes to other tribes used to be dangerous; therefore, traders travelled with arms, and, what is likely, in groups. Before the appearance of more profound written sources in the 13th century, there is no material about interrelations of the Baltic tribes. The spread of archaeological artefacts points to "cultural links" which existed between tribes, though, undoubtedly, armed conflicts and military campaigns, marauding and piracy used to be daily routine in Viking times. After the adoption of Christianity in neighbouring territories, traders were often bringing the new confession to the pagans, building churches and establishing new parishes (Adami 1846, p.16). That could make their travelling even more dangerous. In *Descriptiones terrarum*, a written source from the 13th century, it is said that Christians could never step without a sword into the territory of pagan Žemaitija (Samogitia), a neighbour of Curonia (Gorski 1981; Mugurēvičs1995, p.24).

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GINKLUOTI IR LAUKIAMI. PREKIAUTOJAI IR JŲ KELIAI VIKINGŲ LAIKAIS

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Santrauka

Baltų žemėse X a. antrojoje pusėje atsiranda kapų, kuriuose įdėta svarstyklių ir svarelių sidabrui sverti. Didžiausia jų dalis yra pietinėse kuršių žemėse. Šie radiniai siejami su „pirklių“ kapais, dauguma datuojami XI–XII a.

Prekiavimo būdas vikingų laikų baltų gentyse dar netyrinėtas. Ne tik tolimąją prekybą vykdę pirkliai, bet ir vietiniai galėjo leistis į ilgas keliones. Pradėję kelionę iš vieno centro, eidami sausumos keliais ir nusileisdami upėmis žemyn jie galėjo pasiekti tarpregioninės ar tolimosios prekybos centrus genčių paribiuose, prie didžiųjų upių ar pajūryje.

Kelias upėmis tiek žemyn, tiek aukštyn buvo patogus ir greitas žiemos metu. Keliavimas upėmis žemyn buvo gana greitas bei nereikalavo gerų laivų. Tuo tikslu buvo naudojami luotai ar net laikinos plaukimo priemonės – plaustai. Keliaujant jūra ir seklesnėmis lagūnomis bei upėmis reikėjo skirtingo tipo laivų, todėl pirkliai, kurie iš pajūrio norėjo pasiekti žemyninius prekybos centrus ir vėl sugrįžti į pajūrį, turėdavo pasirinkti kombinuotus kelius ir transportą.

Kuršių mariose stiprūs vėjai greitai sukelia trumpas ir stačias bangas, labai pavojingas nedideliems laivams. Apie laivų skendimus Kuršių mariose ir plaukiojimą Nemunu bei jo intakais yra nemažai žinių rašytiniuose Ordino šaltiniuose.

Galimybė plaukti tiek didesnėmis, tiek mažesnėmis upėmis aukštyn buriniais ar irkliniais laivais labai priklausė nuo metų laiko (nuo srovių stiprumo, upių debito). Normali navigacija Nemune buvo įmanoma nuslūgus pavasario potvyniams iki žiemos. Plaukiojimą sunkino maži vagos gyliai (1,5–1,0 m), tačiau tokio

gylio pakako, nes vikingų laikais ir viduramžiais upių laivų gramzda neviršydavo 90 cm.

Vikingų laikų laivai, išplaukę iš prūsų Kaupo arba Klaipėdos apylinkių centrų, per dieną ar dvi su burėmis pasiekdavo Rusnės apylinkes Nemuno deltoje ir Tilžės apylinkes. Plaukti aukštyn jūrų laivai nelabai tiko. Gali būti, kad juos pakeisdavo mažesniais. Plaukdami aukštyn sustodavo prekybos centruose ar kitose saugiose vietose. Maždaug iki Mituvos ir Nemuno santakos buvo galima plaukti su burėmis. Aukščiau upe, matyt, jau daugiau irklais. Daugelio pirklių, keliavusių laivais, galutinis punktas tikriausiai buvo Kaunas (V iliustr.). Iš Baltijos jūros Kauno apylinkes galima buvo pasiekti per 8–10 dienų, kelionė atgal, pasroviui, galėjo trukti 3–4 dienas. Taigi pirkliai, laivu plaukę iš jūros Nemunu į Kauno apylinkes ir ten dar kelias dienas prekiavę, galėjo grįžti į jūrą maždaug po 15 ar 20 dienų.

Praktiškai kelias Nemunu, matyt, nutrūko ties Kaunu, mat daugybė kad ir nedidelių slenksčių buvo rimta kliūtis keliauti laivais Nemunu aukštyn nuo Kauno apylinkių. Reikia manyti, kad intensyvesnė laivyba Nemunu aukščiau Kauno vykdavo tik žemyn upe luotais ir primityviais plokščiadugniais upių laivais ar net plaustais. Pirklių laivai galėdavo pakilti aukštyn ne tik Nemunu, bet ir mažesnėmis upėmis (V: 1–2 iliustr.).

Į vakarinių baltų žemes jūra, o toliau upėmis buvo įvežama geležis (vikingų laikais jos jau labai trūko), spalvotieji metalai, ginklai. Tradicinės iš baltų kraštų išvežamos prekės, manoma, buvo kailiai, moterys vergės ir gintaras. Labai tikėtina, jog iš Kauno apylinkių gabendavosi ir čia auginamus žirgus. XI–XII a. eksporto preke galėjo būti ir rugiai.

Keliavimą ir prekiavimą apsunkindavo ginkluoti konfliktai ir karo žygiai, plėšikavimas bei piratavimas. Dėl to ne tik svarstyklės ir svareliai, bet ir ginklai buvo įprastinis to meto pirklių atributas.