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Thomas Frank

University of Aarhus, Denmark

UNIQUELY PRESERVED SLAVIC NAUTICAL TECHNOLOGY BEHIND RELIGIOUS EXCHANGE AND TRANSITION IN OLD RUS AND SCANDINAVIA

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In order to understand how world religions such as Christianity spread, we need to investigate routes of religious exchange. This paper examines Scandinavian exposure to Christianity in the Viking Age from a maritime and theological perspective. It does so by combining literary, graphic, and material evidence with a field study of ancient boatbuilding, which is uniquely preserved in Russia. It investigates how Scandinavians in large numbers reached the Christian metropolis Constantinople by adapting their boatbuilding skills to Slavic nautical technology. An analysis of *De Administrando Imperio* proves that Scandinavians used and outfitted the Slavic expanded *logboat* in the text named *σκαφίδιον* (“skafidion”) along *Put' iz varjag v Greki* from the Novgorod Region. It argues that this particular Slavic technology was the precondition for naval expeditions to Constantinople, and it offers a new explanation as to why Slavs over time used the term Rus as a signifier to identify themselves. The paper shows that this is cooperated and elaborated by the field study of the Russian expanded *logboat* ‘ботник’ (*botnik*). The paper argues that this study substantiates the claim in *The Russian Primary Chronicle* also known as *Povest' vremennykh let*, that several thousand Scandinavians and Slavs reached Constantinople during their naval expeditions in year 860, 907, and 941, and the information that some of them were baptized in Constantinople, during these years. It is argued that the first major conversion of the Scandinavian elite took place abroad. Because of *ботник*, Scandinavians together with Slavs were exposed to the idea and reality of a Christian empire long before their kings and grand prince took on and adopted Christianity.

Keywords: *De Administrando Imperio*, *Povest' vremennykh let*, Viking Age vessels, Rus, Varangian, botnik, religious transition, Christianity, boat graves, Staraja Ladoga, Constantinople, King Harald Bluetooth, Grand Prince Vladimir, Scandinavia, Viking Age, *Put' iz varjag v Greki*, monoxylos, skeið.

“And you [Vladimir] and your grandmother Olga transported the Cross from the New Jerusalem — from the city of Constantine — and established it throughout all your land, and so you affirmed and confirmed the faith”.

[Ilarion's Sermon on Law and Grace, 1991, p. 23]

1. INTRODUCTION

During the Viking Age (c. 800–1050), Scandinavian kings adopted Christianity. Denmark was the first place this happened, c. 965, during the rule of Harald Bluetooth (936–985). Since the early Middle Ages, Christianity had spread north through central Europe, and in the 8th century, it was an element in the expansion of Charlemagne's Empire as far as the fortified border to Denmark at Danevirke. Two centuries later Otto I (912–973) had the same strategy and, supposedly, Harald gave in to his pressure [Fabricius, 1934; Koch, 1950; Koch, 1967; Sawyer, 1988; Lausten, 1989; Nyberg, 2002; McGuire, 2009]. However, already in the 8th century, Scandinavians encountered Christianity on their naval expeditions far from their homeland, and some adopted Christianity on these journeys.

Naval activities abroad defined the Scandinavian period of religious transition. For elite Viking Age society, these activities were an integral part of their identity and belief system. By virtue of their seamanship, the sea surrounding their lands became the route to faraway places and riches. Their ships were the vessels that allowed them to travel far beyond the horizon and even from this life to the next as seen in the many boat graves [Franklin, Shepard, 1996, p. 127] and several Scandinavian monumental burials [Hvass, 2011, p. 32]. Therefore, to understand why Scandinavian rulers ended up adopting Christianity, we must challenge the predominant idea of Christianisation as the result of mission together with foreign political pressure. We must consider it as influenced by religious import by sea. More exactly, we must examine and explore the influence of exposure to Christianity abroad. Part of this question is how Scandinavians managed to reach the Christian metropolis Constantinople in the Orient or Austrhálfa¹ by sea and in which numbers.

¹ We know the word Austrhálfa from Old Nordic sources. It is a geographical term and somewhat similar to the word Orient. According to [Jackson, 2019], Austrhálfa

Their journeys east via the Baltic Sea to Constantinople are of special interest. In *The Russian Primary Chronicle* here referred to as *Povest' vremennykh let* (PVL) from the 12th century, *De Administrando Imperio* (DAI) and *De Cerimoniis Aulae Byzantinae* (DCB) from the 10th century, there are indications that members of the Scandinavian elite, together with the Old Rus² elite, were baptized there before 965 and served at the Byzantine court. Furthermore, the influence of the exposure to Christianity on these eastern travels is rarely taken into consideration and examined [Frank, 2018; Frank, 2020].

This paper investigates literary, graphic, and material evidence that Scandinavians during the Viking Age reached the Eastern Roman Empire in large numbers by applying their boat building skills to Slavic nautical technology³. Analysis of DAI provides evidence that it was the Slavic produced expanded logboat (ELB) in DAI *σκαφίδιον* (“skafidion”) that was the basis of their boats. They outfitted these ELBs en route for rowing on rivers and sailing on the sea, as mentioned in DAI. Thus, the ELB was the precondition for the nautical expeditions to Constantinople. This evidence is supported by a field study in 2021 of a Russian ELB, today built by local Russians and called *ботник* (“botnik”). Uniquely, the building of this ELB has been handed down through the generations in Russia⁴. The paper argues that the field study of this Russian ELB on the one hand corroborates the literary sources, illustrations, material finds and the analysis of DAI, and on the other hand, it gives new insights. It elaborates the knowledge provided by the analysis that the exchange of nautical technology influenced the religious exchange and transition.

First, the paper discusses Viking Age travel to the east. Then, it investigates literary sources, medieval illustrations, and material finds refer-

includes Byzantium i. e. also Constantinople. The word consists of the Old Nordic word for the East *Austr* and *hálf*a meaning half or part.

² Old Rus is here used as a geographical term for an area within Eastern Europe, more precisely part of present-day western Russia, Belarus, and Ukraine. In Old Nordic sources, this area is also named Gardaríke [Jackson, 2019, p.65].

³ It is a technology which Scandinavians found in the Middle Ages among the Slavic peoples and tribes of Old Rus. This technology is however known beyond Old Rus and the areas of the Slavic tribes [Crumlin-Pedersen, 1978; Harri, 2010]. The general question of the origin of this technology is not within the scope of this article.

⁴ Experimental archaeology of Viking Age vessels normally has to rely on reconstructions [Crumlin-Pedersen, Jensen, 2018]. In this case and without precedence, the vessel and the craft behind it can be studied as a living boatbuilding tradition.

ring to the boat types used by Scandinavians. Following that, it analyses DAI. Then, it presents the results of the field study. Thereafter, the paper outlines new insights regarding the religious transition in Scandinavia and Old Rus, and the exchange between Scandinavians and Slavs during the Viking Age.

2. VIKING AGE TRAVEL FROM SCANDINAVIA TO AUSTRHÁLFA

Since the early Viking Age, Scandinavians journeying by sea to the east appear in the sources under the name Rus⁵, by which they also identified themselves as early as 839 according to *The Annals of St. Bertin*⁶. It has been proposed that the word Rus originally was related to the Old Nordic word *róþsmenn*, which means “men that rows.” However, Rus both signified a social role (identity) and ethnicity [Franklin, Shepard, 1996, p. 29], and the term Rus was not for long purely referring to Scandinavians. The word Rus according to 10th century Arabic sources included different ethnicities, among them Slavic.

The Russians consist of several different nations and distinct hordes [El-Mas'udis, 1841, p. 416].

Die Russen sind in drei Stämme getheilt; der eine wohnt in der Nähe der Bulgarer; ihr König wohnt in der Stadt Kuthaba, welche grösser ist als Bulgar. Der zweite Stamm heist Slaven, und der dritte Uthanie, ihr König wohnt in Arba [Das Buch der Lander, 1845, p. 106].

In 960, Rus appeared as a name for the people of Old Rus (*Rusciae Gentis*)⁷ and over time it became the name for the Slavic people in Old Rus according to PVL. In the same period, Scandinavians as an ethnic group in Old Rus and in Constantinople also appeared under the Byzantine term Varangian⁸. Importantly, in the first half of the 10th century the Scandi-

⁵ For an elaborate account of the origin of the name Rus, see [PVL, 1953, pp. 35–50]. The term Rus must be used with some caution because it is a signifier used differently in the sources. In this regard, Shepard and Franklin state: “However responsible one may try to be, no account of Rus is definitive” [Franklin, Shepard, 1996, p. xxi].

⁶ *The Annals of St. Bertin* (839) and Chacanus of the Rhos, 2006. S. 7–11.

⁷ *Annales Hildesheimenses*, p. 60.

⁸ The term Varangian appeared after 950 as the name for Scandinavians. It originated in Byzantium and was later used in Old Rus: see [PVL, 1953, pp. 35–50]. This

navian part of Rus is documented in the peace treaties of 912 and 945 in [PVL, 1953, p.40–50]. Among the many names listed in the treaties, as Rus' elite and merchants several are Scandinavian. In addition, Byzantine sources specifically connected the word Rus with Scandinavians.

In DAI, the many names of waterfalls and barrages are in both Old Norse and Slavic. This is strong proof of the Rus developing into a mixed group of Scandinavians and Slavs. These peoples established close ties and travelled together in large units to Constantinople. In *The Chronicle of Novgorod*, we are told that such a mixed group of 4,000 (3,000 Slavs and 1,000 Varangians) on a military campaign in 1016 went from Novgorod to Kiev⁹. In PVL [PVL, 1953, p.72–73], there are other examples of large mixed units in 907 and 941.

Non-literary sources reveal that the Scandinavians at the very beginning of the Viking Age appeared in the east and travelled faraway inland by multiple rivers. Material evidence from Russia [Kainof, 2018; Kainof, 2021] informs that when Scandinavians attacked the convent on the island Lindisfarne near the English coast in 793 [Roesdahl, 1993, p.14; Franklin, Shepard, 1996, p.53], they had already reached Gnezdovo near present day Smolensk at the river Dnepr. Here, as in other places of present-day Russia there are numerous boat graves. These are an important testimony to their travels and presence in the east [Kochkurkina, 1989; Kochkurkina, 2018; Stalsberg, 2001; Sorokin, 2002; Sorokin, 2012; Sorokin, 2018]. Moreover, as early as 860, several sources tell about a Rus fleet attacking Constantinople¹⁰ and from Ibn Khurdadhbih we know that the Rus arriving in Bagdad via the Caspian Sea around 850 presented themselves as Christians¹¹.

Still, mystery surrounds the eastern travels and the effect of these journeys. So far, the question of how they managed to travel this far in their ships has remained unanswered [Stalsberg, 2001; Frank, 2020]. Westerdahl [Westerdahl, 2014, p.78–79] has discussed problems with the notion of all-through portage of ship-size vessels. The results of several important experiments [Nylén, 1986; Edberg, 1998; Lebedev, 1996; Lebedev, Zhvitashvili, 1999; Widerberg, 2014; Edberg, 2017] did not

change of signifiers seemed to have taken place during two centuries, after the Scandinavians appeared at Staraja Ladoga.

⁹ The Chronicle of Novgorod, 1914, p. 1.

¹⁰ The homilies of Photius, 2018, pp. 74–110; Anecdota Bruxellensia, 1894, p.33.

¹¹ The book of routes and provinces, 1865, p. 514.

provide convincing evidence of a massive influx. Instead, the experiments more importantly [Frank, 2018; Frank, 2020] pointed at problems even by the use of small, reconstructed ships known from Viking Age Scandinavia. During this period, some Rus travelled east via the White Sea to rivers leading south¹² along the Volga. Others, according to most frequent scriptural evidence, went via the many rivers discharging into the Baltic Sea. By great effort, hardship, and many days of travelling, they reached the remote eastern trade centers at Dnepr and Volga, and even further at the Black Sea and the Caspian Sea.

Numerous material discoveries and several literary sources in Greek, Arabic, Slavic, and Latin [Frank, 2020, p. 413] speak about these eastern journeys. Some of these sources (PVL, DAI) describe the itineraries and provide important clues about routes from the Baltic Sea. In Fig. 1, Viking Age place names and routes are shown in Old Rus. The most famous of these routes is that following the river Volkov, Lake Ilmen, and the River Lovat to Dnepr and the Black Sea, as described in PVL¹³. PVL calls the route “The Route from the Varangians to the Greeks” (in Russian: *Put' iz Varjag v Greki* [PIVG]). This route went via the easternmost part of the Baltic Sea, passing Staraja Ladoga, Novgorod, Gnezdovo, Kiev and Berezan to Constantinople. Other routes from the Baltic Sea to the Greeks (the Eastern Roman Empire) were closer to the trading centers in the West, such as Haithabu, Wolin and Truso. These routes went via the rivers Daugava¹⁴ and Wisla. Different routes led from the Baltic Sea via smaller rivers and the Volga to the Arab and Persian world. Furthermore, rivers such as the Oka, Desna, and Don, together with several towing places (In Russian: *волок* “volok”) interconnected these routes into a complex infrastructural system.

As today, moving on the rivers was very different from sailing on the sea. The dangers did not disappear, but they were of a different kind, against which the travellers needed the protection of their gods, special skills, and assistance. Sailing inland close to the riverbanks, they were vulnerable to attacks, and they needed new nautical skills together with knowledge of the many rivers. The routes from the Baltic Sea presented a major navigational challenge for the Scandinavians. This problem could not be

¹² The Saga of Hacon, 1894, ch. 371.

¹³ PVL, 1953, p. 53–54.

¹⁴ Kristni Saga tells us that Scandinavians passed Polotsk by Dvina on their way to Kiev, which is proof of the route along Dvina.

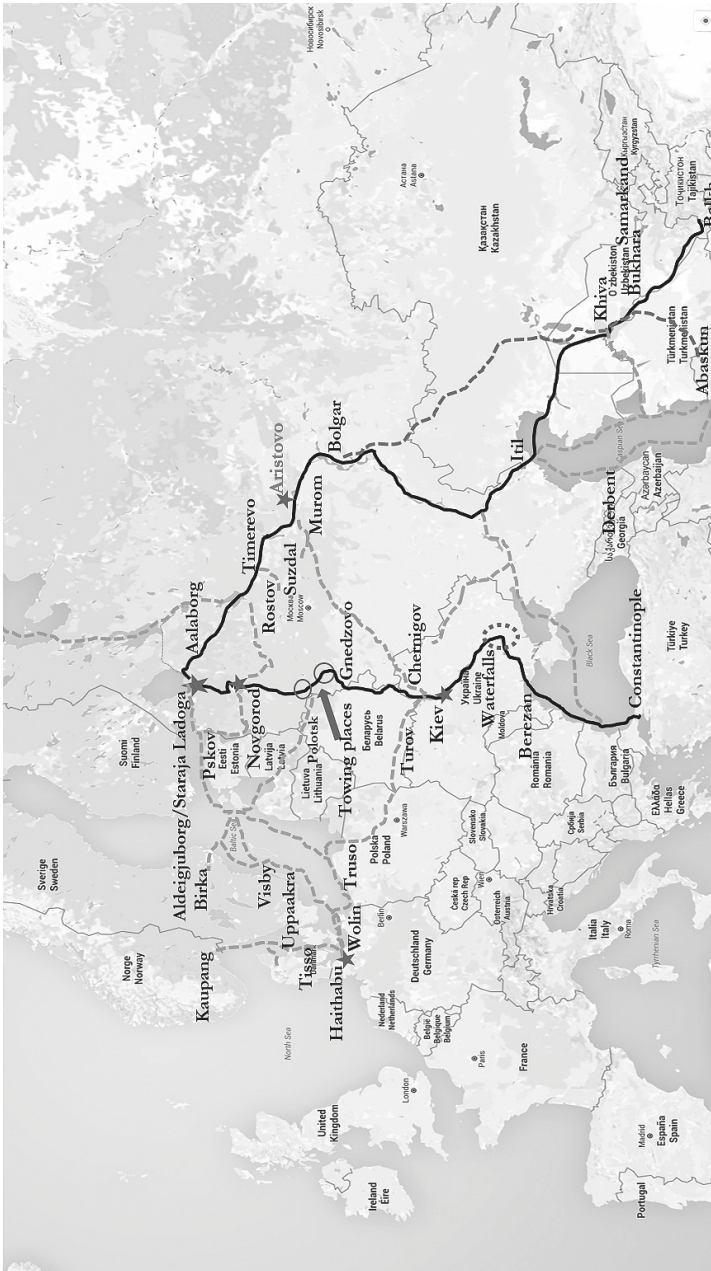


Fig. 1. Routes in the Viking Age.

Map elaborated by Thomas Frank based on <https://mapswire.com/europe/physical-maps/>

solved by building bigger ships; quite the contrary was true. The rivers discharging into the Baltic Sea were on the one hand fascinating gateways to possible riches to be made by trade, pillaging or serving famous warlords or even the Byzantine emperor. On the other hand, they were not suited for the traditional Viking ships such as Skuldelev 1, 2 and 3, Gokstadskibet, Tuneskibet, and Hedeby ¹⁵. From the river deltas the travellers had to row several hundred nautical miles against strong currents. Moreover, they met shallow water, narrow and turning riverbeds, sand banks, boulders and barrages. At some places, they were forced to move the boats over land [PVL, 1953, p. 53–54] and through barrages and past waterfalls [DAI, 1985, p. 56–60].

The oldest known Scandinavian settlement in Old Rus and in present-day Russia is Staraja Ladoga. It is situated on the river Volkov by a natural harbor. In the Viking Age, it had the Nordic name Aldeigjuborg¹⁶. It was close to the Baltic Sea and situated near a barrier of barrages some kilometres south upstream. From this place on, smaller boats were far more suited for the journey, as knowledge about the rivers among local people were required, during the early expeditions. In 1941, the Russian scholar Elena Rydzevskaya [Rydzevskaya, 1945] argued for the need of different vessels from this point on and the existence of a shipyard at the location¹⁷. DAI corroborates this. It tells how Rus' logboats, *μονόξυλος* "monoxylos," sailing to Constantinople among other places came down from Novgorod, about 200 km south of Staraja Ladoga. At the time when DAI was written we know with some certainty that Staraja Ladoga belonged to the prince of Novgorod¹⁸ and was considered within the realm of Novgorod. Therefore, it is reasonable to argue that DAI actually

¹⁵ The finds of Viking ships in Scandinavia [Crumlin-Pedersen, 1994].

¹⁶ Jackson, 2019, p. 85.

¹⁷ Jackson [Jackson, 2019] discusses the question of vessels and Russian research and archeological excavations in Staraja Ladoga following Rydzevskaya's claim [Rydzevskaya, 1945]. She notes that excavations in 1958 and the 1970s showed the existence of boat rivet production around 870. Moreover, Sorokin [Sorokin, 2021] argues that smaller vessels of 6–9 m were used from here. He mentions the Gokstad ships 1–3 as examples of these boats. In Staraja Ladoga, finds of parts from ships with around 20 pairs of oars have been found [Sorokin, 2002; Sorokin, 2021].

¹⁸ One of the indications of that is that Ingegerd of Sweden married Jaroslav of Novgorod, who gave Staraja Ladoga to her as a wedding gift. We know that people of Scandinavian descent coming from Staraja Ladoga settled Novgorod during the Viking Age at Gorodishe.

includes Staraja Ladoga as the place from where the smaller logboats came.

Staraja Ladoga was a unique natural place of transit. Here, returning from their long-distance eastern exploits via the rivers, the Scandinavians would change to their larger seagoing vessels and set sail for their homelands as written in the Saga of Harald Hardrada and in Eiríksdrápa:

In spring he adventured on a journey from Holmgaard and vent to Aldeigjuborg, there he acquired ships and sailed west in the summer [Haralds saga Sigurðarsonar, 2015, ch. 17].

At the onset of spring the vanquisher of the Wends prepared noble ships [to travel] from the east out of Russia; at the beginning of summer the leader of the unit launched the bows onto the curving billow. The brother of Knútr protected the broad plank-wood with a washboard in the turbulent weather; the destroyer of treacherous people, skilled in eloquence, then put to shore in Denmark [Eiríksdrápa, 2012, 4].

3. LITERARY SOURCES, ILLUSTRATIONS AND MATERIAL FINDS

From Staraja Ladoga, there is evidence of the boat types used by Scandinavians on their travels in Old Rus and all the way to Constantinople. Literary sources, illustrations and material finds provide details and information. In order to examine in which numbers and how the Scandinavians managed to reach the Christian metropolis Constantinople by the water route, we must study and discuss these three types of evidence.

3.1. *Literary sources*

In several medieval texts, we find references to ships and boats, and sometimes we can read about their type and size. This is also the case concerning the vessels used on eastern routes all the way to Constantinople. As already mentioned, here the sources talk about smaller vessels and as in DAI use the Greek word *μονόξυλος* “*monoxylós*” (M). The word M literally means a logboat or one-tree boat. Within the literary corpus, the term M primarily is used in two meanings: the literal meaning as a logboat and as the name for a vessel based on a logboat. The second meaning is not to be mistaken with the meaning as *pars pro*

toto, even though this use appears in the sources regarding other nautical terms, as discussed below. In DAI the term M in its literal meaning is used for one entry, *σκαφίδιον* “skafidion,” which is a Greek diminutive of *σκάφη* “skafe,” the ancient Greek word for a small boat. This paper argues and proves by analysis of DAI and field study that the word M in its literal meaning (*σκαφίδιον*) refers to the ELB and the vessel still made in Russia named *ботник*.

The following Medieval texts mentions the M and/or vessels used by Rus on Russian rivers and the Black Sea:

- Chronicon Pascale, c. 630;
- The Chronicle of Georgious Monachus, c. 860;
- The homilies of Photius, c. 860;
- The life of St George of Amastris, c. 900;
- *Tactica* of Leo VI, c. 900;
- *De administrando imperio*, c. 950;
- *De cerimoniis aulae Byzantinae*, c. 950;
- The works of Luidprand of Cremona, c. 960;
- A synopsis of Byzantine history, c. 1050;
- *Strategikon* of Kekaumenos, c. 1078;
- *Povest' vremennykh let*, c. 1100;
- *Russkaya Pravda*, c. 1100;
- The *Alexiad*, c. 1148;
- *Anecdota Bruxellensia*, c. 1200.

The earliest entry of the word M is in *Chronicon Pascale*. It mentions the use of a large number of the Ms on the Bosphorus by Avar and Slavic invaders in 626. In *Tactica of Leo VI* from around year 900, we read a further explanation about the boats used by Scandinavians arriving by Eastern Rivers and the Black Sea to Constantinople in 860:

They [the Rus] use small, light and fast boats. Because of the rivers running into to Black Sea, they cannot use big ships [*Leonis Imperatoris Tactica*, 1917, p. 1011].

Luidprand of Cremona writes in *Antapodosis* c. 950:

The Rus' ships by reason of their small size can move in very shallow water, where the Greek galleys because of their greater draught cannot pass [*The works of Luidprand of Cremona*, 1930, p. 186].

In PVL, vessels are mentioned in the descriptions of Rus' naval expeditions in 860, 907 and 941. Regarding the two first expeditions the original Church Slavonic edition of PVL¹⁹, uses the word *корабль* “kora-bl.” Here the word *корабль* by the chronicler is most likely used as a generic term²⁰.

In the account of the last expedition (941), the Slavic word *скедия* (“skedija”) is used in the original Church Slavonic edition of PVL²¹. Svane [Svane, 1983, p. 260] mentions that this is the Greek word *σχεδια* “skedia,” which is the ancient Greek name for a hastily made wooden vessel, known by Thucydides and Homer, among others²². We also find *σχεδια* in the Old Nordic word *skeið* “skeid.” Like the term Varangian it is likely that it entered the Slavic and Old Nordic vocabulary from Greek as a loan word. During the Viking Age, the word *skeið* came to be used in Scandinavia as the term for a large clinker-built warship. It is the most frequent used word for a vessel in the skaldic corpus [Jesch, 2001, p. 123–126], which is the oldest part of the Old Nordic literary corpus. Jesch mentions that Foote and Wilson suggest that the word *skeið* means either “that which cuts through the water” or “a piece of wood long and sword-shaped” [Foote, Wilson, 1974, p. 236–237]. This resembles the meaning of the word M and the shape of the ELB. It is possible that both *skeið* in Old Nordic and *скедия* in Slavic at some point in time were understood as the equivalent of the M mentioned in DAI in its derived meaning as a logboat outfitted for rowing and possibly sailing. Moreover, *skeið* is in *Eiríksdrápa*, which as a narrative is related to Eastern travels, referred to as being great in number and of varying lengths: “skeið helt mǫrg í móðu / many warships of various lengths” [Eiríksdrápa, 2012, p. 12]²³. In other words, even in the 12th century, *skeið* is not only used to signify at large naval vessel.

¹⁹ The oldest original manuscript of PVL is written in Church-Slavonic.

²⁰ From the context in PVL, *корабль* is difficult to determine in terms of type, though concerning the year 860 as quoted above, we have indications from *Tactica* of Leo IV, that these vessels must have been small, light and fast boats.

²¹ For some reason, the Russian translation of the original manuscript uses the word *корабль*.

²² It is a term for a smaller wooden vessel, known from sources since antiquity, Homer (V, 35) and Thucydides (VI, 2).

²³ *Eiríksdrápa* mentions king Erik's exploits in Old Rus and his relations with the emperor in Constantinople. The text from c. 1040 could in fact be talking about the vessels used in Rus, just as it talks about big ships used when leaving Old Rus like the saga of Harald Hardrada.

The account in Eiríksdrápa that many of these vessels were used together in a fleet is also a characteristic in PVL and DAI. With the figure 10,000 *скедия* mentioned in PVL arriving at Constantinople in 941, and the information in DAI we can assume that PVL is in fact referring to the boat which DAI, written about 10 years after 941 calls the M (meaning a vessel based on a logboat). Furthermore, we can be boldly argue, that it was in fact, a small *skeið* that Scandinavians had in mind when they fitted their vessels based on the Slavic logboat, which they bought in Old Rus.

In *Russkaya Pravda* from the middle of the 11th century²⁴, several boat types are mentioned by ascribing its particular function (seagoing, cargo or river) to the Slavic word *ладья* “ladja,” which is somewhat similar to the Russian word for boat *лодка* “lodka.” However, the logboat is specifically mentioned in *Russkaya Pravda* with the Slavic word *челн* “tzeln,” which means a dugout logboat.

In *The Chronicle of Novgorod* (“Новгородская первая летопись”) covering the period from 1016–1471, there are several entries for vessels. The most common is the word *лодь* “lod” seemingly another version of *лодка* “lodka,” but also an Old Nordic loan word *шнекъ* “snek” from *snekkja* appears in an entry about 60 vessels arriving from Sweden.

From Old Norse Sources we know several words apart from *skeið* for larger vessels [Jesch, 2001]: *skip*, *snekkja*, *dreki* and *knorr*. Jesch has brought our attention to the fact that the keel, the central part of the hull, “kjqlr” in Old Nordic, is sometimes used as a name for the entire vessel: “As a basic part of a ship, the word was almost bound to be used by poets to stand for the whole” [Jesch, 2001, p. 139]. One of these instances we find in *Knútsdrápa* from around 1040.

And the dragon-ships of the land-ruler [Knútr] carried dark sails against the yard in the favoring wind; the sovereign’s journey was glorious. And the keels which arrived there from the west travelled the surf of Limfjorden on their way [Knútsdrápa, 2012, 8].

This could apparently denote that the same logic, is at play in the use of the word M in DAI and in other Byzantine sources regarding the Rus’ vessel, meaning that these seemingly small vessels made of one log were actually ships with this log as a basic part, like the keel. Still, as is discussed in depth and shown below, the vessels used by the Rus could

²⁴ *Russkaya Pravda*, § 79.

not have been large ships. Instead, the logic concerning the word *súð* “sud” brought to our attention by Jesch, could explain the two meanings of the term M and suggests how vessels were given a name. In the Viking Age, in simple logboats boards were added (wooden planks on the side). This process was called *súð* in Old Nordic, which means sewing. This technique was originally used to tie the bords onto the keel. It was later replaced with the use of rivets even though the techniques remained in use, side by side. The word *súð* could be used for the entire vessel, denoting the difference between a simple canoe and larger clinker-built boat with planks on the sides. Therefore, it is reasonable to understand the double use of the word M as vessel with boards and rowlocks as well as a logboat because a central element in its construction was the log, just as sewing was on the *súð*. It tells us that one way to name and signify boats in the Viking Age likely was to name them by a central aspect of their production.

In Old Norse literature not only words for large vessels appear. The words for smaller vessels are *báti* or *batr*. These words are somewhat similar to the present-day local name for the ELB in the field study *ботник* “botnik.” This could be a reminiscence of the Old Nordic *báti* or *batr*, whereby *ботник* must be understood as a small boat, similar to the word *σκαφίδιον*. *Ботник* is a Russian diminutive. If that is correct, the word *ботник* is the Russian equivalent of the Greek *σκαφίδιον* used in DAI.

In all the texts listed and discussed above, we see that there is no talk of Scandinavians south of Staraja Ladoga using big seagoing ships. However, the remaining questions are which type of vessel they used and if the sources are correct when they state that as many as 10,000 vessels were used.

By far, the most precise and important account of the vessels used by Scandinavians as part of Rus, is given in DAI. Before the analysis of DAI is presented, the graphic and material evidence is discussed.

3.2. Medieval illustrations

The predominant reference to smaller vessels in the literary sources is supported by several illustrations related to the period.

In the illustration from the Madrid Skylitzes’ 12th century manuscript of the text “A synopsis of Byzantine history” (see Fig. 2), we see



Fig. 2. A synopsis of Byzantine history. Source: <https://commons.wikimedia.org/wiki/File:Greekfire-madridskylitzes1.jpg> (accessed: 24.05.2022)



Fig. 3. Drawing of Utrecht 1 by A. Van de Moortel. Source: <https://www.researchgate.net/publication/344379149> (accessed: 24.05.2022)

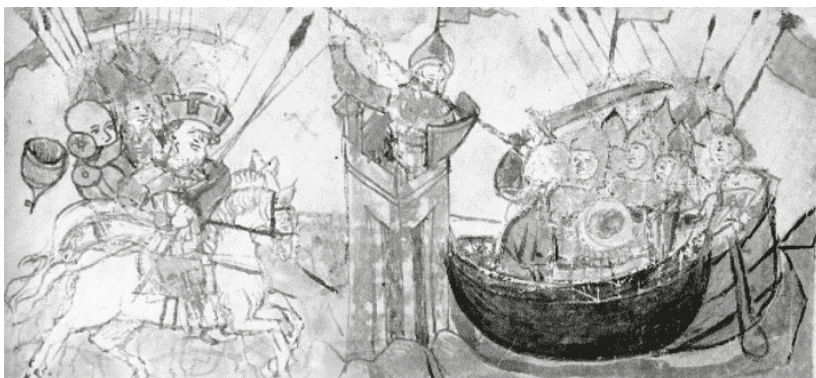


Fig. 4. A boat from Radzivil Chronicle. Source: https://commons.wikimedia.org/wiki/Category:Radzivil_Chronicle#/media/File:10_1_List_of_Radzivil_Chron.jpg (accessed: 24.05.2022)

the Rus boat on the right with no sail. It is depicted as a small vessel with only three men as opposed to six men in the byzantine boat. The form of the hull resembles an actual find of an ELB in Utrecht (see Fig. 3).

Similar illustrations of boats with no sail are found in a 15th century manuscript of the Radzivil Chronicle from the 13th century (see Fig. 4). The scene is Rus' raid of Constantinople in 860.

Apart from these illustrations, a younger illustration from the 16th century depicts a boat in Russia without a sail. It is carried on the shoulders of five armed men.

3.3. *Material finds*

Throughout Scandinavia, there are finds of larger and smaller Viking Age vessels [Rieck, Crumlin-Pedersen, 1988; Crumlin-Pedersen, 1994]. This is so far not the case in the central parts of present-day Russia, Ukraine and Belarus. Along the PIVG²⁵, most finds are of logboats. In other words, the actual finds of vessels supports the textual and graphic evidence that ships, such as the snekkja, dreki and knorr normally were not used south of Staraja Ladoga.

Different types of vessels from the Middle Ages have been found in present-day Russia [Kochkurkina, 1989; Kochkurkina 2018; Stalsberg, 2001; Sorokin, 2018; Sorokin, 2021]. Nevertheless, evidence of big ships along the rivers is very vague. Regarding local shipbuilding, Sorokin states: "No reliable evidence of building clinker vessels with iron rivets in Russian towns has been found so far, although there are potential signs of this on the sites: iron and woodworking industries with industries with all the necessary tools and resources." Stalsberg [Stalsberg, 2001] states that no rivets of the Scandinavian type have been found in Russia including in boat graves; instead, Slavic types have been found. This indicates, that vessels used by Scandinavians in Old Rus normally were made en route to Constantinople, and it supports the literary sources that Scandinavians did not use their Viking ships from Staraja Ladoga.

At two of the production-sites of the M mentioned in DAI and along the PIVG there are finds of the ELBs. In Velikiy Novgorod, three vessels

²⁵ This is, of course not final proof of the types of vessels used. Today major parts of the PIVG have been destroyed by higher water level due to the construction of power stations. In addition, there are unexamined places that in the future could unveil Viking Age vessels.

made of aspen have been found. One of these finds is 6.75 m long. In Gnezdovo, parts of the ELB have been found together with rowlocks of a size indicating that they were placed on a smaller boat [Murasheva, Malysheva, 2017].

Stalsberg [Stalsberg, 2001] has analysed the boat graves in Gnezdovo. In general, there are signs of smaller vessels. Sorokin states that these finds shows that the boats in boat graves were about 6–10 m long [Sorokin, 2018].

So far, only finds from Staraja Ladoga are of ships known from Viking Age Scandinavia [Sorokin, 2018; Murasheva, Malysheva, 2017; Kainof, 2021]. Viking Age finds inland in Old Rus and along the PIVG are more precisely dominated by finds of logboats [Stalsberg, 2001; Sorokin, 2018; Okorokova, 2021] also known from Scandinavia [Crumlin-Pedersen, 1972; Crumlin-Pedersen, 1978; Rieck, Crumlin-Pedersen 1988; Van de Moortel, 2009; Crumlin-Pedersen, Jensen, 2018]. There are two types of logboat finds in Old Rus [Okorokova, 2021]. The traditional or simple logboat (LB), which was a dugout tree-trunk canoe and the ELB. The ELB (exhaustively described in the field study below) was a dugout tree trunk that has its sides bent out with the aid of water and fire. The sides of this boat were cut very thin with an axe, down to around 2 cm. This was accomplished by the use of wood gauges inserted into holes drilled in the tree trunk [Van de Moortel, 2011, p.93]. The thin hull made the ELB a very light vessel compared to the LB. Moreover, with the sides bent, it sat well on the water and could carry much more weight than the LB.

As mentioned, these two types of logboats have been found in several places in Old Rus as parts only or preserved almost intact [Okorokova, 2021]. Some of the known finds are listed below. The boat finds vary in length, width and height.

Finds of LB

Kaliningrad Region (length 8.73 m, width 57 cm, height 95 cm), Bretskoi Region (length c. 3.75, width circa 65 cm), Grodenskaja Region (length 4.6 m, width 70 cm, height 10 cm), Grodenskaja Region (length 8.32, width 97 cm, height 80 cm), Voroneskaja Region (length 7.55 m, width 60 cm, height 90 cm).

Finds of ELB

Velikiy Novgorod (length c. 7 m), Bryansk Region (length 12 m, width 125 cm), Orgev 1 (length 13 m, width c. 260 cm, height circa 80 cm), Orgev 2 (length circa 11 m, width c. 90 cm, height c. 50 cm), Gnezdovo (parts only).

The predominance of logboats, their size and form registered by material finds supports the literary and graphic evidence. Sorokin [Sorokin, 2012] refers to known finds of LB and ELB in Old Rus. He registers additional finds of ELBs along the rivers Msta and Dvina, near Pskov²⁶ and north of Gnezdovo in the portage-area between the rivers Dvina and Dnepr.

The general knowledge within texts, illustrations and material finds is that smaller vessels without sails were used on the rivers in Old Rus and even the Black Sea. This does not prove the exact type of vessel and more importantly that Scandinavians together with Slavs arrived in great numbers in the years 860, 907 and 941. However, by analysing DAI we are able to determine²⁷ the boat type that was used in large numbers without excluding the existence of other types of vessels and even fleets of different types of ships as it has been argued by Ravn was used on sea expeditions [Ravn, 2016].

4. ΣΚΑΦΙΔΙΟΗ THE SLAVIC BOAT OF RUS ACCORDING TO DAI

The text with the most precise description of the vessels used along the PIVG is DAI. This description is part of an eloquent narrative of Rus coming to Constantinople. It is found in the first part of DAI in chapter 9 (*Περί τών από Ῥωσίας ἐρχομένων Ρώς μετά τών μονοξύλων ἐν Κωνσταντινουπόλει*. 'Of the coming of the Russians in 'monoxyla' from Russia to Constantinople.'). Rather precisely, this chapter describes the building of the Rus vessel, its use, and the Rus itinerary.

DAI, which uses the word M for the vessels of Rus, is together with DCB a text of unique historical value [Moravcsik, 1967; Sevchenko, 1992; Shchhavelev, 2019]. It represents the actual and detailed information acquired by emperor Constantine VII Porphyrogenitus about the people surrounding his empire. The information about the Rus vessels and the vessel M is most likely the result of first-hand knowledge. In other words, Constantine VII must have gained this information personally from Rus, which is probable. We know, as mentioned above, from the text DCB that baptized Rus served at the court during his reign: "οί

²⁶ Near Pskov in Estonia, the craft of making ELBs is preserved.

²⁷ The Swedish scientist Westerdahl [Westerdahl, 2014] presumes with no proof that the boat type M in DAI was the ELB. Probably as the first the Russian scientist, Voronin presented this idea [Voronin et al., 1951].

βαπτισμένοι Ρῶς μετὰ φλαμούλων, βαστάζοντες σχουτάρια, φοροῦντες καὶ τὰ ἑαυτῶν σπαθία. ‘Baptized Rus with flamens, carrying shields and spears’” [DCB, 2014, p. 579–580]. Constantine VII was the Godfather of the representative of Rus’ elite, Princess Olga, in 955 [DCB, 2014, p. 594–598]. This also implies close relations with Rus. Furthermore, we know from the peace treaty of 945 between Igor, Romanus and Constantine VII, which is reproduced in PVL, that baptized Rus resided in Constantinople [DAI, 1985, p. 50–52]. Maybe one of these baptized Rus serving at the court personally described the coming of Rus in their Ms to Constantinople. Chapter 9 is a great narrative about the Rus. The story of this informant must have captured the emperor as it does today. According to Shchavelev [Shchavelev, 2019, p. 697], Constantine VII himself wrote the chapter about the Rus.

From DAI’s description in chapter 9, it is possible to formulate 22 criteria for the Rus vessel used from Staraja Ladoga to the Black Sea and on other rivers of Old Rus as well. These criteria are the following:

Criteria of the M in *De Administrando Imperio* (Chapter 9)

1. The M was a logboat.
2. The word M is used with two meanings: a logboat and a fitted logboat.
3. The M was used in large numbers as part of the Rus’ fleet of this boat type.
4. The M came from Novgorod, Smolensk, Teliutza, Chernigov and Vyshegrad.
5. The M was transported from the place of production via the river Dnepr to Kiev.
6. The M was made to the Rus by tributary Slavic tribes and the rest of the Slavic regions (five tributary Slavic tribes are mentioned by name in DAI).
7. The logs of the M was chosen and cut down in winter on the hills of the Slavic tribes.
8. The logs of the M were formed and prepared²⁸ from the time of cutting until spring.
9. In spring, when the ice melted, the log was brought to nearby lakes connected to the river Dnepr.
10. Along Dnepr, the M was transported to be finished and sold in Kiev.

²⁸ Westerdahl [Westerdahl, 2014] seems to translate *καταρτίσω* ‘kartitso’ wrongly as “fasten together” and interpret that as if rafts were made of the M. That rafts were made cannot be excluded. However, the word *καταρτίσω*, as Jenkins translates it, means “to prepare” or “make ready”.

11. The M was sold to Rus in Kiev as a little tree-trunk boat (*σκαφίδιον*)²⁹.
12. Rus fitted this little tree trunk boat with oars and rowlocks and other tackle from their old logboat(s)³⁰.
13. The M was a hybrid of Slavic and Scandinavian technology.
14. Rus had used the M before they acquired them (their new ones) in Kiev.
15. When fitted by the Rus the M was still light enough to be carried on the shoulders by more than one man.
16. At the Dnepr barrages, the M was sometimes dragged through the water without people and only goods inside.
17. Three men were enough to drag and navigate the boat past the barrages along the riverbank.
18. The M should and could pass the seven named barrages south of Kiev (in both Slavic and Old Nordic languages).
19. The M carried goods and people including slaves.
20. Upon arrival at the Black Sea, the M was fitted with a sail, mast and rudder.
21. The sail, mast and rudders were transported in M to the Black Sea.
22. The M was durable for long-distance travel (at least Kiev to Constantinople).

These 22 criteria tell that we should be looking for a vessel known in Old Rus in the Viking age, suitable to fit with rowlocks, based on a vessel dugout from one tree, capable of being carried by a few men, to be dragged through barrages by three men but still with room for goods, slaves and men. These criteria indicate that the M is a logboat, a LB or an ELB. As shown above the technology for both were present in

²⁹ In Jenkins' translation of the Greek text, he translates the word *σκαφίδιον* as "bottom". The sentence *Οἱ δὲ Ῥῶς σκαφίδια καὶ μόνα ταῦτα ἀγοράζοντες* he translates as: "The Russians buy these bottoms only". This is imprecise. The word *σκαφίδια* is a diminutive of *σκάφη*, which literally means "something dug out" deriving from the Greek verb *σκάπτω* meaning "to dig". *Σκαφίδια* is used as the name for a small dugout boat denoting a traditional canoe made from a dugout tree trunk. The correct translation of *σκαφίδια* is therefore: "little dog out tree-trunk boat" and it functions in the Greek text as a synonym for the word M. It explains the literal meaning of M, which as discussed, in the text can both be used for the entire fitted vessel and this carved-out tree-trunk boat.

³⁰ Westerdahl [Westerdahl, 2014, pp. 86–88] suggests that the Greek word *σκαρμος* ("skarmos") which means "rowlock" is actually the Old Nordic word "skarm" and a term for a washboard. Though not unlikely, this seems an unnecessary notion. Rowlocks could very well imply washboards. The argument for the use of a Nordic loan word here is not convincing. In fact, like suggested with the word *σχεδια*, it might be a Greek loan word.

areas (Novgorod and Gnezdovo) mentioned in DAI chapter 9. The ELB is known from Velikiy Novgorod with three finds from the 11th century and near the route from Kiev close to the river Pripyat with three finds from the 13th century.

Applying the criteria on these two types, what we know about the present production of logboats and the knowledge of the finds, the ELB must be the boat mentioned in DAI. Especially criteria 7, 8, 12 and 15 shows this.

Criterion 7 (Chapter 9, verses 10–11):

Οί δέ Σκλάβοι, οί πακτιώται αὐτῶν, οί Κριβηταιηνοί λεγόμενοι, καί οί Λενζανήνοι καί αἱ λοιπαί | Σκλαβηνιαί εἰς τὰ δρη αὐτῶν κόπτουσι τὰ μονόξυλα ἐν τῷ τοῦ χειμῶνος καιρῷ.

“Their Slav tributaries, the so-called Krivichians and the Lenzanenes and the rest of the Slavonic regions, cut the ‘monoxyla’ on their mountains in time of winter.”

Here, we are told the tree was cut down in winter, which is also the time, when the tree for the ELB was cut down.

Criterion 8 (Chapter 9, verses 11–13):

<...> καί καταρτίσαντες αὐτά, τοῦ καιροῦ ἀνοιγομένου, ἤνικα διαλυθῆ ὁ παγετός, εἰς τὰς πλησίον οὐσας λίμνας εἰσάγουσιν αὐτά.

“<...> and when they have prepared them, as spring approaches, and the ice melts, they bring them on to the neighbouring lakes.”

Here, we are told that it takes several months from winter to spring to finish the boats. This is not necessary for a simple LB; however, it is exactly the time of production for an ELB today.

Criterion 12 (Chapter 9, verses 16–19):

Οἱ δέ ῥῶς σκαφίδια³¹ καί μόνα ταῦτα ἀγοράζοντες, τὰ παλαιά αὐτῶν μονόξυλα καταλύοντες, ἐξ αὐτῶν βάλλουσιν πέλλας καί σκαρμούς εἰς αὐτά καί λοιπᾶς χρείας ἐξοπλίζουσιν αὐτά.

“The Russians buy these simple and little dog out tree trunk boats, furnishing them with oars and rowlocks and other tackle from their old ‘monoxyla’, which they dismantle; and so they fit them out.”

³¹ See note 28.

According to criterion 12, they fitted the boats with oars and rowlocks. Today this is only known from finds of ELB. The expanded logboat fitted with rowlocks we know from finds in Scandinavia, England, The Netherlands, Germany, Poland, Estonia, Belarus and Russia [Crumlin-Pedersen, Jensen, 2018, p. 12–15]. Moreover, because of the width needed a simple dugout canoe would need an enormous log to be suitable for rowlocks.

Criterion 15 (Chapter 9, verses 53–57):

Εἶθ' οὕτως οἱ μὲν σύροντες, οἱ δὲ καὶ εἰς τοὺς ὤμους βαστάζοντες τὰ αὐτῶν μονόξυλα εἰς το τοῦ φραγμοῦ ἐκεῖθεν μέρος διαβιβάζουσιν καὶ οὕτως ρίπτοντες αὐτὰ εἰς τον ποταμόν καὶ τὰ πετζιμένα αὐτῶν ἐμβλησκόμενοι, εἰσέρχονται, καὶ αὐθις ἐναποπλεύουσιν.

“Then, partly dragging their ‘monoxyla’, partly portaging them on their shoulders, they convey them to the far side of the barrage; and then, putting them on the river and loading up their baggage, they embark themselves, and again sail off in them.”

According to criterion 15, the M could be carried on the shoulders in the fitted versions. This excludes traditional Nordic ships. They weighed far more than would allow them to be carried on the shoulders. It must also be taken into consideration that a LB is heavier than an ELB, which also Crumlin-Pedersen remarks [Crumlin-Pedersen, 1972].

All criteria, including 7, 8, 12 and 15, present strong evidence that the M referred to in DAI was an ELB, which is also given the name *σκαφίδιον* (little tree-trunk boat). Nothing in the literary evidence, the finds, and illustrations challenges this argument³². Therefore, we must consider this particular Slavic technology as the precondition for Rus’ major nautical expeditions to Constantinople. This shared technology is the reason why Scandinavians were able to reach the Christian Metropolis.

This evidence with its importance of Slavic boatbuilders and Slavic tribes for Rus’ (Scandinavian) ambition to reach Constantinople offers an explanation why Slavs rather early became significant and numerous

³² Concerning the question of how many individuals could be in the Ms including the slaves (that Rus’ according to DAI took with them), it is important to underline that DAI does not see this as a problem. The boats which could be carried on the shoulders could also transport slaves. That slaves were transported at the same time is an indication that many boats were used, just as mentioned in DAI and PVL.

members of Rus³³. By virtue of their nautical technology Slavs became Rus. PVL claims that the Slavic people took the name Rus from Scandinavians. The proof of the Slav nautical importance for the Rus allows us to suggest that Slavs, as boatbuilding communities living in settlements along the rivers, identified with the Scandinavian seafarers and vice versa. Scandinavians appreciated their (the Slavic tribes) craft and invited them to take part in their expeditions. Over time, the Slavs as the vast majority in Old Rus not only adopted and embraced the maritime Rus' identity and the name Rus. They shaped it. Figuratively spoken, it can be argued that the Slavs during 10th century formed the core of Rus' identity just as they shaped the basic element of Rus' boats. This identity came to unite the many different Slavic tribes. It is likely that a new Slavic Rus' identity developed. It subdued the former Scandinavian, which was forgotten and no longer used by the Scandinavians themselves³⁴.

5. FIELD STUDY OF БОТНИК

In 2019, this author discovered the production of the ELB in Russia. Uniquely, 2,000 years after the oldest finds of an ELB in Scandinavia³⁵, this boat type is still made around 60 km from the Volga's confluence with the river Oka in the village of Aristovo (see Fig. 1). As mentioned above, local people call this ELB *ботник*. Normally experimental studies of vessels rely on reconstructions. This unique find without precedence made it possible to study the living boatbuilding tradition of the ELB³⁶.

The field study was simply designed with three purposes: first, to register and document the production of the ELB; second, to use this boat type to find the shortest route from the Viking Age settlement Staraja Ladoga to the Caspian Sea; and third, to find out if this boat type, as the evidence suggests, could be used on the different rivers, including the Volga. Two visits were made to Russia; one in January 2020 and one from August to October 2021³⁷.

³³ As discussed above, in Chapter 2 and according to sources, there is little doubt that Rus was a mixed ethnic group in 907 and 941.

³⁴ The focus of identity might keep the latent controversy of Normanism versus Anti-Normanism discussed by many [Lebedev, 2005a; Melnikova, 2012] at bay.

³⁵ Rieck, Crumlin-Pedersen, 1988, pp. 79–90.

³⁶ This field study was made possible with the help from Mikhail Sergievich Napylov, Vladimir Prokhorov, Jury Nemtsov and Nikolai Fjordovich.

³⁷ Initially, one visit more was planned in May 2020, however, the Covid-19 pandemic did not allow that.

5.1. The building process of “ботник”

The ancient technology of making ELBs is without precedence among Viking Age vessels preserved in present day Russia and Estonia [Parts, 2019]. It has been uniquely handed down through the generations, on the outskirts of Old Rus. It is proof of the former use and importance of the ELB that the craftsmanship of this boat type has uniquely survived in a village near the Volga and close to Old Rus in Estonia near the Baltic Sea.

In January 2020, the process of building three ELBs began in Russia (see Fig. 5). They were made of aspen (*Populus Tremula*) similar to finds of the ELB in Novgorod and still used to make the ELB in Estonia.



Fig. 5. Building of ELB. Photo Anton Belousov, 2020

Right from the beginning it was evident that the building process was quite similar to the one described above in DAI, in particular with respect to criteria 7 and 8. The trees, around 70 years old, were cut down in winter, and from this time until spring, the logs were carved and formed into an ELB.

Today the boatbuilder Mikhail Sergeevich Napylov makes the boats together with his neighbor Viktor. Normally they make two boats, one for each. Mikhail Sergeevich Napylov described how, as a child, he went to the forest in the winter with his father to make boats. His father made boats without chainsaws — there were none at the time — so he used an

axe, an adze, a plane and a brace with drills. “In winter, my father and I went to the forest to choose aspens for the Botnik. It was a very hard work in the middle of winter, yet our family needed the money we could earn by building the boats.”

For many years, Mikhail Sergeevich Napylov has been making ELBs. He knows all the right aspens in the nearby forest and knows which one to choose for a given size of boat. In detail, the manufacture of the ELB in Aristovo was registered as follows³⁸:

First he chooses the right diameter of an aspen. They come up to a tree and wrap their arms around it at chest level. If there is a gap between their hands of about 30 cm or more, then such an aspen is considered suitable for making an ELB.

The trunk of the tree should be cylindrical; there should not be any twigs, rot, tinder fungus, cracks and other defects above its height of 6–8 m. The trunk of the tree should be straight; a slight curvature is allowed on one side, where the bottom of the boat will be. The optimal length of the ELB is 5 m. With this length the best shape is obtained when expanding, but they are made to be both 4.5 m and 5.5–6.5 m. (Here Fillipov mentions that they could be made up to 7.5 m [Filippov, 2020].) The larger the diameter of the aspen, the longer the ELB can be. They build Botniki both in the forest and near their homes. The process of shaping the log into the desired shape consists of several stages as follows:

The log is placed on two underpads of a small diameter.

They turn the log onto its supporting pads, looking for the side where there is a bump in the middle part. This will be the bottom of the ELB. From the center of this curved part to the bow and stern, they begin to cut to a difference of 5 cm. They can immediately make cuts in the bow and stern to give them the desired bend.

Then, they place the aspen with that hewn side on the backing board, the way the ELB is going to be positioned on the water. Then they hew the right and left sides of the aspen with an axe, polishing them into a straight line. And immediately, cross-cuts are made every 5 cm along the top of the tree. They try not to make deep cuts in the middle part of the tree, so that the width of the tree cavity remains about 20 cm. Then the cuts grow gradually deeper, so that the closer to the stern and the bow, the notch is as deep as 1/3 of the trunk's diameter. At the finishing stage, the tree trunk is polished. The depth of the notch is almost as deep as half the diameter of the tree. The gashes are chopped off with an axe, and this polished part is turned down, so that the ELB's bottom is on top.

After that, they find the center of the polished tree trunk and draw the centerline from the stern to the bow. Using an axe, they work on the ELB's

³⁸ The author together with Mikhail Sergeevich Napylov and the filmmaker Jury Nemtsov made this description of the building process.

desired shape, watching the centerline. The shape is similar to the shape of an egg. This applies to the top, bottom and sides of the tree trunk.

All the surfaces are carefully levelled, so no dents are left. This is the most important part of the manufacturing process, since the shape of the ELB depends on it and how it will be expanded (straightened).

Next, polishing is performed with a plane.

Then, holes whose are drilled of 6–8 mm in diameter, with a depth of about 5 cm. The distance between the holes is 25–30 cm. They do not drill close to the edges of the ELB's boards.

They cut dry rods of buckthorn with a diameter of 6–9 mm, and a length of 20 mm. Then, they soak them overnight in water until they get a brown color.

The log is placed upside down; they make cuts along the sides in the inner part and then cross-cuts, but carefully so as not to saw through the wall of the tree trunk. All this is poked out with a groove or an adze. The finishing internal processing is done with an adze, which is necessary for this work, until the moment when a round speck appears — the end of the previously hammered buckthorn. This means that it is impossible to further polish (chop off) the wood otherwise the board would be thinner than 20 mm.

The boards are levelled with an axe to the desired shape and until the expansion (straightening) time is covered with snow or completely soaked in a reservoir with water. (Here Fillipov mentions that the log needs to be in water for at least a week [Filippov, 2020].)

In order to expand (straighten) the tree trunk, they make a fire from dry wood along the entire length of the ELB. Poles are placed at a height of about 1 m. They let the fire burn a little until the flames are reduced. The tree trunk is placed in the center of the fire on the poles with the bottom up for heating from the inside. After 40–50 min. the body of the boat becomes elastic and loses its rigidity. At this time, the tree trunk is turned upside down again; they place clamps made of wood bars in the stern and in the bow, so that the sides do not break, and they continue to heat it up. Then they turn the tree trunk on one side, then on the other, and at this time, they place rowan rods with a bend of the required length crosswise, to stretch the sides with tension. Under this influence, the sides open — first one, then the other.

Towards the end of the straightening process, the rods from one board are placed on the other. When expanded (straightened) to the desired shape, the finished ELB is removed from the fire and put on the ground.

At this time, in addition to the rods, 5 spacers made of thin wood are placed between the upper edges of the boards, fastened with nails. Then they put the ELB in the shade under the roof so it dries for one month.

At the end of the drying process, the boards are finally levelled and they put 5 frames inside the hull, each of which are adjusted in their place.

At the end of the work, the ELB is coated with pine resin at least twice and dried well. Outside, in the stern and bow, in the end part, they place strips of thin sheet metal 30 mm wide and 50–60 cm long to prevent cracking. In the old days, instead of the metal sheet, they nailed down branches of bird cherry or mountain ash sticks cut along their length.

Filippov [Filippov, 2020] has made another description of the craft on the river Kerzenets in Nizhny Novgorod oblast. In Estonia, Keerdo [Keerdo, 2011] and Parts [Parts, 2019] have described the Estonian process of making the ELB. Comparing these descriptions shows the existence of a widespread craft of making these ELBs. Harri [Harri, 2010] has discussed and described the diffusion of the ELB. He argues that the method underwent developments and several different methods existed, which is verified by studies made by this author of Estonian and Russian methods of making the ELB.

5.2. The eastern route from Staraja Ladoga to the Caspian Sea

To test ELB for long-distance travel, the field study followed a route different from the PIVG³⁹, the route that, in the Viking Age, led from Staraja Ladoga to the Volga and all the way to the Caspian Sea.

How Scandinavians in the Viking Age reached the Volga is unexplored. We know some came via the White Sea. Regarding the entry via the Baltic Sea to the Volga, there is [Makarov, 2017] a tendency among scholars to think Scandinavians exclusively followed the route along the river Svir to the Volga. However, there are comparatively very few finds along this route and it was longer than the route discovered in this field study. Today channels and log systems connect the route via the Svir. Nevertheless, not all maps from before the establishment of the channels and logs show this route.

Studies of maps, literary sources, and material finds [Kochkurkina, 1989; Kochkurkina 2018; Stalsberg, 2001] supported by Franklin and Shepard [Franklin, Shepard, 1996] suggest the existence of a route from Staraja Ladoga via several smaller rivers to the Volga (see Fig. 1). From Staraja Ladoga, the river Volkov led, via the Ladoga Lake to the river Sjas. Via Sjas, the river Tikhvinka was reached. From here, they could follow the rivers Sominka, Goryn, Tjagoda, Tjagodesja, and Mologa to the Volga.

³⁹ In 2017, the author found and followed the PIVG [Frank, 2020].

During the field study, this route was explored several months after the snow and ice had melted — during the months August, September and October. This is a period of low water compared to spring. Also in the Viking Age, the water was at its highest level in spring. Still, all year long (when the rivers were free of ice) the river flow was strong and dangerous. Local knowledge and experience of navigating the rivers was crucial, especially on the smaller rivers.

Along this route, the Viking Age settlements⁴⁰ in Staraja Ladoga, Aalaborg, Tikhvin, Timerevo, Bolgar and Itil were visited during the field study. The itinerary of the study excluding the layover days is presented in Table 1⁴¹.

Table 1. Route from Staraja Ladoga to the Caspian Sea

Start	End	River	Days	Distance, km
Staraja Ladoga	Aalaborg	Volkov, Sjas	3	101
Aalaborg	Tikhvin	Sjas, Tikhvinka	2	60
<i>Tikhvin</i>	<i>Somina</i>	<i>Ruined log system made navigation impossible</i>		
Somina	Timerevo (Jaroslavl)	Sominka, Goryn, Tjagoda, Tjagodosja, Mologa, Volga	9	424
Timerevo	Gorodets	Volga	6	337
Gorodets	Nizhny Novgorod	Volga	1	50
Nizhny Novgorod	Cherboksary	Volga	5	344
Cherboksary	Bolgar	Volga	4	248
<i>Bolgar</i>	<i>Volgograd</i>	<i>Boat moved by truck</i>		
Volgograd	Astrakhan	Volga	8	372
Total distance rowed, km				1936

⁴⁰ From these places, we have important finds of Scandinavian presence including boat graves at some of the sites [Kochkurkina, 1989; Kochkurkina, 2018; Franklin, Shepard, 1996; Makarov, 2017; Stalsberg, 2001; Sorokin, 2012; Sorokin, 2018].

⁴¹ The idea of the study was to visit historical places and talk to scientists. Therefore, more layover days were necessary.

Though the field study was not a conventional archaeological experiment, together with the study in 2017 [Frank, 2018], it provides a guideline of the time needed during late summer and autumn. More importantly, the study proved that this route was used in the Viking Age. We must imagine that Scandinavian merchants and other travellers followed this route as early as the late 8th century.

5.3. Navigating “ботник”

Due to Covid-19 the ELB ended up being stored for one year after its production before its actual use. In May 2020, it was painted with tar inside and on the hull for the first time. It was painted a second and third time on the hull in June and August 2021, some weeks before departure. The ELB weighed c. 40 kg at the beginning and 46 kg after 50 days in water, approximately 10 h a day.

The expedition began on August 6, 2021 in Staraja Ladoga by the old natural harbor used in the Viking Age. It ended on September 25 in Astrakhan by the Caspian Sea.

The ELB was not fitted with rowlocks as mentioned in DAI, and it was rowed by only one man⁴².

For a period of 50 days (see Table 1), the boat was rowed nearly 2000 km, in high winds up to 13 m/s, waves up to 1 m and, for shorter distances against a current up to 3.5 kn. It was dragged against the current, when the current was higher than 3.5 knots. This was the case for the first part of the route. Therefore, more time was needed for this part (see Table 1).

During the night, the boat was carefully dragged on land. Besides the weight of an approximately 80 kg man, the equipment, including water up to 20 L, was around 40 kg. Under optimal conditions, it could manage a distance up to 75 km during 10 h of constant rowing. The ELB was painted with tar two times on the hull during the expedition.

The ELB performed very well in the different types of water on this route. It is a very light and stable boat, which sits well on waves and is easy to navigate and steer. The traditional tar coating preserved the boat well though it had to be painted a third time on the hull after 20 days on the water. The hull was able to withstand rocks and stones. During

⁴² If the actual ELB were to be fitted as indicated in DAI with rowlocks, sail and rudder, it would be possible to obtain more knowledge about this boat type and thereby the travels to the East in the Viking Age.

the expedition, evidence of similar boats were found along the ancient route to the Caspian Sea, more precisely in Somina, Gorodets, Nizhny Novgorod, Kazan and Bolgar.

6. NAUTICAL INSIGHTS TO RELIGIOUS EXCHANGE AND TRANSITION

The field study supports and elaborates the analysis of DAI. Thereby, the value of DAI as an accurate historical text with first-hand witnesses is emphasized⁴³. Most importantly, the field study together with the analysis of DAI, presents new insights concerning the production of the ELB, the use of the ELB and information about the exposure to Christianity within this period.

6.1. *The performance of the ELB in the unfitted version*

The test (Table 1) of the ELB confirmed that these boats, as argued in DAI, could travel long distances to Constantinople. These boats could be dragged through difficult waters with boulders, bending riverbeds and strong currents. They could be carried on shoulders if necessary. Thereby, not only are DAI's claims about the fitted ELB proved, but more knowledge about their performance has been acquired. This shared technology made large-scale expeditions possible against the current on the Volkov and Lovat and the passing of the barrages on Dnepr all the way to Constantinople.

6.2. *The production of the ELB and its consequences*

Concerning the production of the ELB, we must imagine a boat-building process somewhat similar to that of the field study. This was the situation in many places in Old Rus during the Viking Age, as mentioned in DAI. Scandinavians at some point found out that they could use this technology⁴⁴. This set the scene for the exchange of skills and cooperation. It was, as discussed in the analysis of DAI, most likely conducive to the development of the Rus as a mixed Slavic-Scandinavian group. Rus, as a group, were especially bound together by nautical skills and sailing as their means of transport, namely nautical skills from

⁴³ This qualifies the other historical information in DAI about this period. The historical value of DAI is underlined.

⁴⁴ Westerdahl [Westerdahl, 2014, p. 85] proposes with reference to DAI that Rus during winter took part in the production and maybe even controlled it. This seems likely.

the sea and long-distance travels (Scandinavians) on the one side, and abundant Slavic boatbuilding skills of the ELB used on shorter distances and local knowledge of the geography on the other side. While the Scandinavian expeditions to the west were characterized by the fact that they could use their own vessels and technology all the way, Scandinavians in the east were forced to cooperate with native boatbuilders. In the early Viking Age, Scandinavians arriving in England were seen as a threat [Timofeeva, 2016]. In the east, the story turned out differently⁴⁵. Scandinavians needed assistance and could not be indiscriminately aggressive toward the local population.

6.3. *The question of production-numbers*

The study of the building process gives a profound understanding of how the vessels of DAI were actually constructed. In addition, it indicates how many ELBs could be produced at a time. PVL state that a great number of vessels were used by Rus in 860 (200), 907 (2,000) and 941 (10,000). The exact numbers for the year 860 are supported by another Byzantine source⁴⁶. However, in the Byzantine chronicle of Georgius Monachus the numbers of vessels are not mentioned. Instead, the chronicle as an indication of their numbers, state that the Rus surrounded Constantinople in their vessels. They spread great fear until the emperor took action and the Rus by divine intervention were defeated. The many vessels of the Rus sank [Georgius Monachus, Tomos 4, p. 161–167]⁴⁷. The magnitude of the attacking fleet in 860 is also indicated in the homilies of Photius [The homilies of Photius, 2018, p. 82–110]. The numbers for 907 are not known from other sources. Luidprand of Cremona writes concerning the attack in 941 “These people [Rus] had a king named Igor, who got together a fleet of a thousand ships or more, and sailed to Constantinople” [The works of Luidprand of Cremona, 1930, p. 185]. The chronicle of Georgius Monachus supports this. Here it is mentioned that the Rus came in thousands of vessels: “*Ἰουνίῳ δὲ μὲν ἰα’ κατέπλευσαν οἱ Ῥῶς κατὰ Κωνσταντινουπόλεως μετὰ πλοίων*

⁴⁵ It is the subject for another study, to compare the Scandinavian appearance in the West as described by Timofeeva with the appearance in the east during the Viking Age.

⁴⁶ See: [Anecdota Bruxellensia, 1984, p. 33]. It is likely that this source were known to the writers of PVL.

⁴⁷ It is widely acknowledged that PVL used The Chronicle of Georgius Monachus [PVL, 1953, p. 23–24]. In the text of PVL, it twice refers to this chronicle.

χιλιάδες” / “In the month of June the Russians came sailing down to Constantinople in thousands of vessels.” [Georgius Monachus, Tomos 4, p. 1001]⁴⁸. In DAI, there is no mention of how many boats were made. There are, however, indications that it was a large number, somewhat comparable to the numbers mentioned in PVL and the other sources.

The field study, to some extent, supports PVL and these sources. The fact that the boatbuilder with his neighbor in Aristovo made three boats in one winter, allows us to argue that 100 boatbuilders in the Viking Age could make approximately 150 boats within a season, provided there was enough wood available⁴⁹. Moreover, according to DAI, all the Slavic tribes in Old Rus, five of which are named in DAI [DAI, 1985, p. 57, 62], built the ELB for Rus. In PVL [PVL, 1953, p. 37], eight Slavic tribes are listed. If each of them had allocated 100 boatbuilders and had 150 logs at their disposal, it is possible that 1,000 ELB's could be produced. Moreover, if taken literally, the numbers 2,000 and 10,000 (PVL) must be seen in light of the fact that not only new vessels were used. The ELB could last more than one season. The boatbuilder Mikhail Sergeevich Napylov tells that if taken care of, the ELB could last up to 50 years. The number of vessels mentioned in PVL is additionally supported by the verification of the boat type (ELB) in the analysis and the field study. They were comparatively small boats. Therefore, many of these vessels, likely more than 1,000, were needed to transport the military campaign strategically necessary to attack Constantinople. Moreover, in DAI we are told that the M (ELB) came from five places and gathered in Kiev. These places were populated centers in Old Rus. They were clan centers with their own leadership and DAI as well as Luidprand of Cremona [The works of Luidprand of Cremona, 1930, p. 185] suggest that all these clans gathered forces in order to attack Constantinople. In comparison, *The Chronicle of Novgorod*, as mentioned above (Chapter 2), tells that 4,000 men (3,000 Slavs and 1,000 Varangians) in 1016 went from one of these five places (Novgorod) to Kiev.

Taken together, it is plausible that a great number, more than 1,000, of new and old ELBs sailed to Constantinople. It supports the claim in PVL that a considerable number of Scandinavians and Slavs reached Constantinople in 860, 907 and 941.

⁴⁸ Ibid.

⁴⁹ This author in 2022 found unverified evidence that an Estonian boat builder made 30 ELBs in one season. It was supposedly his record.

6.4. *The magnitude of the exposure to the Eastern Roman Empire*

That great numbers of Rus reached Constantinople implies and verifies the information that many Rus were exposed to Christianity in Constantinople. One source tells that Rus, after their defeat in 860, asked the Patriarch Photius to send a bishop⁵⁰, which he did and a few years later, supposedly, an archbishop was sent with many gifts and performed a miracle with the use of fire that convinced the Rus⁵¹.

The actual influence of this early Christianisation of the Rus and Old Rus territory caused by the Rus' arrival in Constantinople has been debated and questioned, by several scholars [Shepard, 2009]. However, the proof of the magnitude of these expeditions leaves no doubt that a massive exposure of Rus to Eastern Roman Christianity was the case since 860. From that time on, a period of religious and ideological transition began, until the final adoption of Christianity in both Scandinavia and Old Rus.

Since the late 9th century, a Byzantine sea (an appointed bishop) existed in Old Rus. Moreover, after the Rus' attack on Constantinople in 907 the peace treaty of year 912 mentions Rus in the service of the emperor [PVL, 1953, p.43], which is corroborated by Byzantine sources telling that no less than 700 Rus in 911 were part of the Byzantine marine⁵². This implied loyalty to the Christian emperor, though it is questionable if that included baptism for all of them.⁵³

From the beginning of the 10th century, Rus' exposure to Eastern Roman Christianity had intensified. In 945, PVL tells that many Christian Varangians resided in Kiev and that there was a church there [PVL, 1953, p.55]. The peace treaty from the same year mentions many Christian Rus' [PVL, 1953, pp.50–51]. According to the names in this treaty, some of them were of Scandinavian descent. Furthermore, as mentioned above, DCB tells that baptized Rus served at the Imperial Palace in Constantinople [DCB, 2014, p.579]. Therefore, it is reasonable to argue that a considerable number of the Rus were baptized in Constantinople as a consequence of this massive exposure.

⁵⁰ See: [Theophanes Continuatus, 1838, p. 196]. This is corroborated by Photius himself, who writes that he sent a bishop [Photii Patriarchae Constantinopolitani Epistulae et Amphilochia, 1983, p.50].

⁵¹ See: [Theophanes Continuatus, 1838, pp. 342–343].

⁵² Luidprand of Cremona mentions a similar use of Rus c. 960 [The works of Luidprand of Cremona, 1930, p.252].

⁵³ As opposed to service at the imperial palace according to DCB, there is no proof that this military service entailed baptism.

6.5. The first major elite Scandinavian conversion

It is likely that a Scandinavian Christian community of practice came into existence in Old Rus and Constantinople⁵⁴, and this suggests that the first major conversion of the Scandinavian elite took place abroad in Constantinople⁵⁵. This hypothesis of a Scandinavian Christian community abroad is supported by an anecdote in *Gesta Danorum* by Saxo Grammaticus. The Danish king Erik Ejegod in Constantinople c. 1100 met a military unit of Danes in the service of the emperor (as Varangians). He conversed with them, in his mother tongue and praised them for their service over the generations. He told them that, if they returned home, they would be rewarded well [*Gesta Danorum*, XII, 7.2].

6.6. Christianisation of Scandinavians in the east was part of the Christianisation of Rus and Old Rus

For Scandinavians the exposure to Christianity in Constantinople was intertwined with the similar exposure of Old Rus' elite society. Before the first Scandinavian king adopted Christianity, this resulted in the baptism of Princess Olga in 955 [DCB, 2014, p. 594–598]. She was baptized in Constantinople most likely together with her retinue of Rus' elite, and the emperor himself, Constantine VII, was her godfather. This indicates that the Byzantines and the Eastern Roman emperor considered Olga the head of the Old Russian State. It is likely that a rather large number in her retinue was baptized. This was the case more than a century before in 826 when the Danish king Harald Klak was baptized in Ingelheim in the presence of the West Roman Emperor Luis the Pious.

A few years after her baptism in 960 the Rus and most likely Olga requested a bishop from the Western Roman Emperor Otto I [*Annales Hildesheimenses*, p. 60]. In the period of religious transition when Christianity was adopted in Scandinavia, it is important to take into consideration the possible influence of this eastern exposure to Christianity. Moreover, this influence was part of the Christianisation process of Old Rus and the Rus (as groups of different ethnicities).

⁵⁴ This is to some extent, supported by the Danish scholar John Lind who has advocated for a Varangian Christianity [Lind, 2017].

⁵⁵ How this new religion manifested itself among the Scandinavians is outside the main scope of this paper. It is however likely, that elements of old Scandinavian customs and rituals remained.

7. CONCLUSION

The ability to combine Scandinavian nautical technology with Slavic technology gave access to the Christian World in the east. The existence of compatible Slavic technology was a precondition for the eastern exploits, and it set the scene for exchange.

The Slavic boat *ботник* is the actual basis of the fitted boat of the Rus mentioned in DAI as the *μονόξυλος* and most likely in PVL as the *скедия*. This ELB, which is uniquely preserved in a living boat-building tradition in Russia, made it possible for the Scandinavians and the Slavs, to move further and further south along the rivers in great numbers in spite of the fact that the routes from the north at Staraja Ladoga did not allow big ships.

To move along the rivers in the east, Scandinavians needed skilled boatbuilders among them and it opened up a transfer of skills and a close relation with the Slavs. It was only a question of time before Rus, as a term for the people arriving by sea in the early Viking Age, was used as a name for the numerous Slavs living along the rivers, making the ELBs and taking part in the expeditions. At some point, the tables turned and the Slav Rus' were the ones to invite Scandinavians to join. By virtue of their nautical technology Slavs became Rus.

Even though adventurous Scandinavians might have instigated the travels to the east, these expeditions to the east in the Viking Age were, by their nature, voyages of exchange and were likely to result in friendships being formed between the ethnicities instead of animosity. A bilingual community of practice appeared. For Scandinavians, the territory of Old Rus was not only a place with conflict. Over time, it also became a place of assimilation and integration somewhat different from their western destinations.

The shared technology made it possible for Scandinavians in large numbers to meet the Eastern Christian Empire in Constantinople during the Viking Age. This confrontation was nothing short of a massive exposure to a new religion dressed up in imperial ideology, architecture and grandeur. Years before their kings, adopted Christianity, this exposure of the Scandinavian travellers, as an ethnic group was part of the larger mixed group, the Rus. During the campaigns of 860, 907 and 941 several thousand Rus reached Constantinople by sea. In Old Rus, the consequences of that culminated in year 988 when Grand Prince Vladimir adopted Christianity. However, decades before and earlier than the baptism of Princess Olga in 955, elite Rus, and thus elite Scandinavians, became Christians in the East.

While some Scandinavians stayed in Constantinople and others settled in Old Rus, some returned to their homeland, made rich by their exploits and as now baptized with gifts from the emperor. In narratives about their exploits abroad they took home with them the impressive idea of a powerful Christian empire, Byzantian style. It is difficult not to imagine that these highly respected returnees facilitated the religious transition in Scandinavia, which in Denmark culminated in 965.

This particular eastern influence of Scandinavia was part of a larger transition in Old Rus, and Scandinavian kings, like Constantine and Charlemagne centuries before them, understood that the new religion they met abroad was a powerful tool in their hands. It was in their interest, and a great honor as appointed by their new triune god, to adopt Christianity.

The analysis and field study presented in this paper have provided several new insights. However, the matter need to be further explored by new field studies within the framework envisioned by the Russian scholar Gleb Lebedev that “the time has come to examine the ancient water-route with pre-sailing boats powered exclusively by oars” [Lebedev, 2005b, p. 384]. The unique evidence of the Viking Age boat *σκαφίδιον* and present-day Russian *ботник* raises new questions. Just as it tells the story of how Scandinavians together with Slavs met the Christian culture abroad in great numbers, it might tell a far older but somewhat similar story of how culture moved north from the east before Christianity appeared as a new religion⁵⁶.

ABBREVIATIONS

DAI — De administrando imperio
DCB — De Cerimoniis Aulae Byzantinae
ELB — Expanded logboat
LB — Logboat
M — Monoxylos
PVL — Povest' vremennykh let
PIVG — Put' iz varjag v greki

⁵⁶ One question is whether the ELB was brought from present-day Russia to the North where it became part of the development of the Viking ship in the late Iron age as suggested by Crumlin-Pedersen [Rieck, Crumlin-Pedersen, 1988, p. 92] and Von de Moortel [Von de Moortel, 2009]. Did Scandinavians, when they more than 2000 years later returned to Russia in the Viking Age, find this technology preserved in the old form, with which they were somehow familiar? This author wishes to use the ELB of the field study to explorer that hypothesis in 2022.

MEDIEVAL SOURCES

- Annales Hildesheimenses*. Available at: https://www.dmgh.de/mgh_ss_3/index.htm#page/63/mode/1up (accessed: 02.01.2022).
- Anecdota Bruxellensia*, ed. F. Cumont. Gand: Librairie Clemen (H. Engelcke successeur), 1894. 119 p.
- Das Buch der Lander*, transl. by A. D. Mordtmann. Hamburg: Druck des Rauhen Hauses in Horn, 1845. 204 p.
- De administrando imperio*, ed. G. Moravcsik, transl. by R. J. H. Jenkins. Washington, D. C.: Dumbarton Oaks Center for Byzantine Studies, 1985. 354 p.
- De cerimoniis aulae Byzantinae Libri Duo*, vol. 1, transl. by J. J. Reiske. Primary Source Edition, 2014. 876 p. (In Greek)
- El-Mas'udi's Meadows of Gold and Mines of Gems*, transl. by A. Sprenger. London: Harrison & Co, 1841. 464 p.
- Eiríksdrápa*, transl. by J. Carrol. In: Whaley D. (ed.). *Poetry from the Kings' Sagas 1: From Mythical Times to c. 1035. Skaldic Poetry of the Scandinavian Middle Ages I*. Turnhout: Brepols, 2012. 487 p.
- Georgius Monachus*. Available at: https://www.documentacatholicaomnia.eu/30_20_0800-0900-_Georgius_Monachus.html (accessed: 21.08.2020).
- Gesta Danorum*. Available at: <http://wayback-01.kb.dk/wayback/20101108105429/http://www2.kb.dk/elib/lit/dan/saxo/lat/or.dsr/> (accessed: 02.12.2021).
- Haralds saga Sigurðarsonar*, transl. by A. Finlay, A. Faulkes in Snorri Sturluson. Heimskringla Vol. III. Magnus Olafsson to Magnus Erlingsson. London, 2015. 292 p.
- Illarion's Sermon on Law and Grace*, transl. by S. Franklin. *Sermons and Rhetoric of Kievan Rus'*. Harvard: Harvard University Press. 1991. 326 p.
- John Skylitzes: a Synopsis of Byzantine History 811–1057*, transl. by J. Wortley. Cambridge; New York: Cambridge University Press, 2010. 491 p.
- Knútsdrápa*. Available at: <https://skaldic.org/m.php?p=text&i=1356> (accessed: 06.06.2022).
- Kristni saga*, transl. by S. Gronlie. London: Viking Society for Northern Research, 2006. 148 p.
- Leonis Imperatoris Tactica*, transl. by R. Vari. Budapest: Budapestini Academia Litterarum Hungarica, 1917. 370 p.
- Russkaya Pravda*. Available at: <http://lib.pushkinskijdom.ru/Default.aspx?tabid=4947> (accessed: 02.12.2021). (In Russian)
- Photii Patriarchae Constantinopolitani Epistulae et Amphilochia*. Vol. 1. *Epistularum pars prima*, ed. B. Laourdas, L. G. Westerinck, 1983. 197 s.
- Strategikon of Kekaumenos*, ed. M. D. Spadaro. Alessandria: Ed. dell'Orso, 1998. 254 p. (In Greek)
- The Alexiad*, transl. by E. A. Dawes. London: Kegan Paul, 1928. 427 p.
- The Annals of St. Bertin (839) and Chacanus of the Rhos*, ed. I. Garipzanov. *Ruthenica*, 5, 2006. P. 7–11.
- The book of routes and provinces*, transl. by C. B. De Meynard. *Journal Asiatique*, 1865 (May-June). P. 446–532.

- The Chronicle of Novgorod 1016–1471*, transl. by R. Michell, N. Forbes. London: Offices of the Society, 1914. 237 p.
- The homilies of Photius*, transl. by C. Mango. Eugen, Oregon: Wipf and Stock Publishers, 2018. 340 p.
- The life of St George of Amastris*, ed. V. Vasil'evskij. *Russian-Byzantine studies*, 2, 1893. P. 1–73. (In Greek)
- Theophanes Continuatus, Ioannes Cameniata, Symeon Magister, Georgius Monachus*, ed. by I. Becker. Bonnae, 1838. 951 p.
- The Russian Primary Chronicle: Laurentian text*, transl. by S. H. Cross, O. P. Sherbowitz-Wetzor. Cambridge, Massachusetts: The Mediaeval Academy of America, 1953. 313 p.
- The Saga of Hacon, transl. by Sir G. W. Dasent. *Icelandic Sagas and Other Historical Documents Relating to the Settlements and Descents of the Northmen on the British Isles*, vol. 4, London, 1894. 491 p.
- The works of Luidprand of Cremona*, transl. by F. A. Wright. New York: E. P. Dutton & Company, 1930. 306 p.

REFERENCES

- Crumlin-Pedersen O. Skin or wood? A study of the origin of the Scandinavian plank-boat. *Ships and shipyards, sailors and fishermen*, ed. O. Hasslöf, H. Henningsen, A. E. Christensen. Copenhagen, 1972. P. 208–234.
- Crumlin-Pedersen O. Bådgrave og gravbåde på Slusegård. *Slusegårdgravpladsen III*, 1978. P. 97–241.
- Crumlin-Pedersen O. Marinarkæologisk Forskingscenter i Roskilde — en aktuel orientering. *Fortid og Nutid*, marts 1994. S. 24–52.
- Crumlin-Pedersen O., Jensen H. *Udspændte bade fra vikingetid og jernalder*. Roskilde: Vikingeskibsmuseet i Roskilde, 2018. 99 s.
- Edberg R. *En Vikingafard Genom Ryssland og Ukraina: Ett arkeologiskt eventyr*. Sigtuna: Vikingabatsforeningen Aifur och Sigtuna Museer, 1998. 96 s.
- Edberg R. *Vikingar i osterled: Gamla batar och moderna fardexperiment*. Stockholm: Stockholms Universitet, 2017. 63 s.
- Fabricius L. P. *Danmarks kirkehistorie*. København: Lohse, 1934. 1096 s.
- Filippov J. V. *Nizhny Novgorod one-tree boat — kerzhensky botnik*. 2020. Available at: http://cr-journal.ru/rus/journals/513.html&j_id=44 (accessed: 22.10.2021). (In Russian)
- Foote P., Wilson D. M. *The Viking Achievement*. London: Book Club Associates, 1974. 473 p.
- Frank T. *Min vej til vikingernes Byzans*. København: Kristeligt Dagblads Forlag, 2018. 364 s.
- Frank T. Rediscovering Russian-Scandinavian relations: The role of medieval Russian waterways. *Scandinavian Philology*, 18 (2), 2020. P. 409–427.
- Franklin S., Shepard J. *The emergence of Rus: 750–1200*. London: Longman, 1996. 450 p.

- Harri L. On the diffusion of the bark canoes, skin boats and expanded log boats in the Eurasian North. *A Circumpolar Reappraisal: The Legacy of Gutorm Gjessing (1906–1979)*, ed. C. Westerdahl. Trondheim, 2010. P. 189–217.
- Hvass S. *Jelling-Monumenterne — deres historie og bevaring*. Kulturarvsstyrelsen, 2011. 91 s.
- Jackson T.N. *Eastern Europe in Icelandic Sagas*. Leeds: Arc Humanities Press, 2019. 216 p.
- Jesch J. *Ships and Men in the Late Viking Age The Vocabulary of Runic Inscriptions and Skaldic Verse*. Woodbridge: The Boydell Press, 2001. 330 p.
- Kainof C. J. *The Gnezdov archaeological complex. Materials and research*. Iss. 1. Moscow: Proceedings of the State Historical Museum, 2018. 552 p. (In Russian)
- Kainof C. J. *The Gnezdov archaeological complex. Materials and research*. Iss. 2. Moscow: Proceedings of the State Historical Museum, 2021. 472 p. (In Russian)
- Keerdo J. *Haabjaehituse teoreetilised põhimõtted ja praktilised lahendused*. 2011. Available at: <https://haabjas.files.wordpress.com/2019/03/2011-jaan-keerdo-magistritc3b6c3b6> (accessed: 02.01.2022).
- Koch H., Kornerup B. *Den danske kirkes historie I*. København: Gyldendal, 1950. 419 s.
- Koch H. *Danmarks kirke gennem tiden*. København: Gyldendal, 1967. 247 s.
- Kochkurkina S. I. The 10th — early 11th century artifacts in Karelia and in the South-Eastern Ladoga Region: Ethnocultural aspect. *Archeology*, 171 (2), 2018. P. 7–15. (In Russian)
- Kochkurkina S. I. *Monuments of the South-Eastern Ladoga and Prionezhie*. Petrozavodsk: Karelia, 1989. 348 p. (In Russian)
- Lausten M. S. *Danmarks kirkehistorie*. København: Gyldendal, 1989. 352 s.
- Lebedev G. S., Zhvitchashvili I. B. *Dragon Nebo: on the Way from the Varangians to the Greeks. Archaeological and navigational research of ancient water communications between the Baltic and the Mediterranean*. St Petersburg: Nordmed Publ., 1999. 196 p. (In Russian)
- Lebedev G. S. *From the Varangians to the Greeks under sail and oars*. 1996. Available at: <https://norroen.info/articles/lebedev/nevo.html> (accessed: 23.08.2020) (In Russian)
- Lebedev G. S. Reassessment of the Normanist Question. *Russian History*, 32. 2005a. P. 371–385.
- Lebedev G. S. *The era of the Vikings in Northern Europe and Russia*. St Petersburg, 2005b. 640 p. (In Russian)
- Lind J. H. 'Varangian Christianity' and the Veneration of Anglo-Saxon and Scandinavian Saints in Early Rus. *Identity Formation and Diversity in the Early Medieval Baltic and Beyond: Communicators and Communication*, ed. J. Callmer, I. Gustin and M. Roslund. Leiden; Boston: Brill, 2017. P. 107–135.
- Makarov N. A. *Die Rus' im 9.-10- Jahrhundert: Ein arch.ologisches Panorama*. Mainz: Wachholtz Murmann Publishers, 2017. 541 s.

- McGuire B.P. *Da himmelen kom nærmere: Fortællinger om Danmarks Kristning 700–1300*. Frederiksberg: Alfa, 2009. 262 s.
- Melnikova E. The 'Varangian Problem': Science in the Grip of Ideology and Politics. *Russia's Identity in International Relations: Images, Perceptions, Misperceptions*, ed. R. Taras. Abingdon: Routledge, 2012, pp. 42–52.
- Moravcsik G. Critical Introduction. *Constantine Porphyrogenitos, De Administrando Imperio*, vol. 1, ed. by R. G. H. Jenkins, G. Moravcsik. Washington, 1967. P. 15–39.
- Murasheva V., Malysheva N. Finds of Wooden Ship Parts at Gnezdovo, Interaktion ohne Grenzen: Beispiele archaologischer Forschungen am Beginn des 21. Jahrhunderts, ed. by B. V. Eriksen, A. Abegg-Wigg, R. Bleile, U. Ickerodt. Schleswig: Archaologisches Landesamt Schleswig-Holstein, 2017. P. 671–682.
- Nyberg T. Danmarks kristning — fra Ansgar til Erik Ejegod. *Kristningen af Norden — et 1000-års jubil. um.*, ed. by L. Bisgaard, R. S. Christensen. Odense: Syddansk Universitet, 2002. S. 37–57.
- Nylén E. The Krampmacken Project. *Sailing into the past*, ed. by O. Crumlin-Pedersen, M. Vinner. Roskilde: Vikingeskibsmuseet i Roskilde, 1986. P. 104–113.
- Okorokova A. B. Traditional shipbuilding as part of the cultural heritage of the peoples of Russia. Moscow: Institut Nasledii Publ., 2021. 558 p. (In Russian)
- Parts P.-K. A brief manual for building an Estonian dugout canoe. *Studying Estonian heritage craft technologies: best of Studia Vernacula 2013–2019*, 11, 2019. P. 190–199.
- Ravn M. *Viking-age War Fleets: Shipbuilding, resource, management and maritime warfare in 11th-century Denmark*, Viking Ship Museum Roskilde, 2016. 161 p.
- Rieck F., Crumlin-Pedersen O. *Bade fra Danmarks Oldtid*. Roskilde: Vikingeskibsmuseet i Roskilde, 1988. 180 s.
- Roesdahl E. *Vikingernes verden*. København: Gyldendal, 1993. 335 s.
- Rydzevskaya E. A. Information about Old Ladoga in Old Norse Literature. *KSIIMK*, 11, 1945. P. 51–65. (In Russian)
- Sawyer P. Da Danmark blev Danmark: 700–1050. *Gyldendal og Politikens Danmarkshistorie*, vol. 3. Ed. O. Olsen. København: Gyldendal, 1988. 376 s.
- Shchhavelev A. S. Treatise De Administrando Imperio by Emperor Constantine VII Porphyrogenitus: Date of the Paris. GR. 2009 Copy, Years of Compiling of the Original Codex, and a Hypothesis about the number of Authors. *Studia Geranea*, 9, 2019. P. 681–704.
- Sevcenko I. Re-reading Constantine Porphyrogenitus. *Byzantine Diplomacy*, ed. by J. Shepard, S. Franklin. London, 1992. P. 167–195.
- Shepard J. The coming of Christianity to Rus: Authorized and unauthorized versions. *Conversion to Christianity from Late Antiquity to Modern Age: Considering the Process in Europe, Asia, and the Americas*, ed. by C. B. Kendall, O. Nicholson, W. D. Phillips, Jr., M. Ragnow. Minnesota: University of Minnesota, 2009. P. 185–222.

- Sorokin P. Waterway from Varangians to the Greeks: Some results of experimental study on Medieval navigation. *Between continents: Proceedings of the twelfth symposium on boat and ship archeology*, ed. by N. Günsenin. Istanbul: Offprint, 2012. P.279–286.
- Sorokin P. *Waterways and Shipbuilding in North-western Russia in the Middle Ages*, 2002. Available at: <https://dengelen.com/~m10354/mar/rus-ship.htm> (accessed: 27.08.2020).
- Sorokin P. Viking boats in Medieval Russia from written and archeological evidence. *Archaeonautica*, 21, 2021. P.371–375.
- Sorokin P. The boats from graves on the Territory of Old Russia. *Stratum plus*, 5, 2018. P.235–250.
- Stalsberg A. Scandinavian Viking age boat graves in Old Rus'. *Russian History*, 28 (1), 2001. P.359–401.
- Swane G. O. *Nesters krønike*. Aarhus: Vormianum, 1983. 325 s.
- Timofeeva O. The Viking outgroup in early medieval English chronicles. *Journal of Historical Sociolinguistics*, 2 (1), 2016. P.83–121.
- Van de Moortel A. The Utrecht ship type. *Between the seas: transfer and exchange of the eleventh international symposium on boat and ship archeology*. Mainz, 2009. P.329–336.
- Van de Moortel A. Medieval boats and ships of Germany, the Low Countries, and northeast France — archeological evidence for shipbuilding traditions, shipbuilding resources, trade, and communication. *Siedlungs- und Küstenforschung im südlichen Nordseegebiet (SKN)*, 34, Rahden; Westf, 2011. P.67–104.
- Voronin H. H., Kapger M. K., Tikhanova M. A. *Istoriia kultury Drevnei Rusi*. Vol. 1. 1951. 501 p. (In Russian)
- Westerdahl C. Boats, Portages and Texts. Comments on society and water transport in inland Russia during the Viking Age. *Norsk Maritimt Museum. Årsbok*, 2014. P.71–109.
- Widerberg L. Med Fornkåre genom Ryssland 2013. *Sigtuna Dei*, 2014. S. 82–87.

Томас Франк

Университет Орхуса, Дания

**УНИКАЛЬНАЯ СОХРАНИВШАЯСЯ СЛАВЯНСКАЯ МОРСКАЯ ТЕХНОЛОГИЯ
КАК ФАКТОР РЕЛИГИОЗНОГО ОБМЕНА И ПЕРЕХОДА В СТАРОЙ РУСИ
И СКАНДИНАВИИ**

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Для того чтобы понять, как распространялись мировые религии, такие как христианство, необходимо исследовать пути религиозного обмена. В данной работе рассматривается воздействие христианства на скандинавов в эпоху викин-

гов в контексте морских путешествий и теологии. В настоящем исследовании используются литературные, изобразительные и материальные свидетельства, а также полевые исследования древнего судостроения, которое уникальным образом сохранилось в России. Приводятся свидетельства того, что множество скандинавов достигли христианской метрополии Константинополя, адаптировав свои навыки строительства лодок к славянским морским технологиям. Анализ текста *De Administrando Imperio* позволяет доказать, что скандинавы использовали и оснащали славянскую расширенную бревенчатую лодку, названную в тексте скафидион («скафидион») по пути «из варяг в греки» из Новгородской области. В статье утверждается, что именно эта славянская технология была предпосылкой для морских экспедиций в Константинополь и что она предлагает новое объяснение того, почему славяне со временем использовали термин «Русь» в качестве обозначения для самоидентификации. В статье показано, что этому способствует полевое исследование русского расширенного бревенчатого судна — ботника. Это исследование обосновывает утверждение в русской летописи «Повесть временных лет» о том, что несколько тысяч скандинавов и славян достигли Константинополя во время морских экспедиций в 860, 907 и 941 гг., а также информацию о том, что некоторые из них были крещены в Константинополе в эти годы. Утверждается, что первое крупное обращение скандинавской элиты произошло за границей. Благодаря ботнику скандинавы вместе со славянами познакомились с идеей и реальностью христианской империи задолго до того, как их короли и великий князь приняли христианство.

Ключевые слова: *De Administrando Imperio*, *Повесть временных лет*, суда эпохи викингов, Русь, варяги, ботник, религиозный переход, христианство, лодейные могилы, Старая Ладога, Константинополь, король Харальд Синезубый, великий князь Владимир, Скандинавия, эпоха викингов, путь *из варяг в греки*, моноксилос, скир.

Thomas Frank

PhD, Affiliated Researcher,
University of Aarhus,
7, Jens Chr. Skous Vej, Aarhus, 8000, Denmark
E-mail: tofr@km.dk

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