Traces of marine activity in the history of medieval Vologda

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Abstract. Paleozoological study of archaeological findings from the excavations of Vologda settlement (12th–15th centuries) revealed information about trade and trade links between Vologda and the Arctic region. The existence of such links in the Middle Ages and the Modern Age is also confirmed by museum collections and written sources that contain information about the participation of residents Vologda in long-distance marine expeditions to the Arctic region.

1. Introduction

Vologda is a city situated on the eponymous river – the right-bank tributary of the Suhona river flowing into the Northern Dvina. Historically, Vologda had never been within the boundaries of Pomorye but comprised Zavolochye territory. The distance between Vologda and the White Sea along the Suhono-Dvinskii river route is 1100 kilometers. However, careful study of written sources, archaeological collections and museum exhibits enables to identify traces of marine activities in the area located at a considerable distance from the Arctic. Paleozoological findings from the excavations in Vologda and from the museum collections of Vologda region have been examined for the purpose of the current research.

Archeological findings of animal bones have been repeatedly explored by paleozoologists. The excavations in Vologda have revealed bones of game species, domestic animals as well as ichthyofauna. However, bones of marine mammals not endemic to this region have not been found up until recently. In 2011, rescue excavations conducted by the team headed by an archeologist, Dr. O. Adamenko, for the first time yielded unique osteological materials [1]. The dig site of 38.4 m² at 3, Parkovy lane, Vologda was established in the center of archeological monument “Vologda Medieval Settlement – the foundation of the city of Vologda”, 12th – 15th century (figure 1).
The excavation revealed remains of the decayed construction, two cooking pits. The town building and findings mainly belong to 14th century. The analysis of the findings showed a high material level and status of the inhabitants as rare medieval objects had been found: a fibula, metal rings, a small bell with a linear slot, a knife with a handle, pivoted scissors, a small molded vessel with floral ornament and a letter “little yus” depicted on its wall, etc. It is noteworthy that the cultural layer was very rich in women's accessories expensive at the time – glass bracelets; in total, there were found more than 100 fragments of various types of bracelets within the boundaries of the construction [2, 3] (figure 2).

**Figure 1.** The map of the dig site № 30 within the territory of Vologda Medieval Settlement of 12th – 15th cc.
Figure 2. Archeological findings from Vologda excavation № 30.

2. Analysis
Paleozoological analysis of the collection also revealed extraordinarily interesting material that can make a considerable impact on the scholarly perception of the initial period of the existence of the city. The osteological collection from the site at 3, Parkovyi Lane, includes bones of domestic mammals (cattle and small cattle, horses, pigs, dogs, cats), birds (the Galliformers, including domestic chicken; the Anatidae, namely, a swan), fish (the Cyprinidae and the Esocidae). Among traditional composition of items of fauna, there were identified unusual findings to the area of Vologda: a vertebra of a whale of the Monodontidae family and a tooth of a walrus of the Odobenidae family (figure 3).

A fragment of a vertebra (layer 3, sector B-4), 7.5x7.6 cm in diameter, represents an end plate of the caudal vertebra of the toothed whale of the Narwhal family, apparently, of the beluga. There are no traces of tool marks; the inner surface is not rounded.

The tooth, whose size is 3.8 x 1.8 x 1.3, included into the collection of individual findings as an artifact (layer 3, cleanup), is a premolar tooth of a walrus (Inventory No CherMO NV 15464/ 98). The tooth bears marks of handling, which indicates that it might have been intended to be used as a pendant. There are traces suggesting attempts of smoothing the surface and shaping the cavity for suspension; there is also an unfinished drilled hole. The only known archeological object similar to this finding comes from the artefacts of the 10th-15th century-settlement in Lukovets near Cherepovets (Inventory No CherMO 1740/ 2). It is a rectangular pendant made of walrus ivory with a drilled hole (figure 4).
The presence of imported and status [4] objects in the excavation №30 in Vologda might point to a possible affiliation of the inhabitants of the homestead with trading, craft or, given the latest findings, with marine activities. The artifacts from excavations in Velikiy Novgorod also show the role and status of the city dwellers in whose houses objects made of walrus ivory were found [5]. Stamps, dice and chips, combs and knife handles, ear picks, beads and other findings made of walrus tusk were discovered there in layers related to the 11th-early 15th centuries. Walrus fishery in Novgorod had been active until late 15th century [6, p. 21]. The value of walrus tusk surpassed commercial and artistic importance of other teeth of the walrus, whose utilitarian functions or significance for trading is not known. However, the finding from Vologda goes to show that there were at least experimental attempts to polish walrus teeth for further using.

The value of whale products was determined by a considerable amount of fat (up to 150 kg of fat from one animal) and skin that could be obtained by catching one animal. The fat of beluga whale was rated higher than that of seals and other whales (it was used as lubricant, fuel, medicine, and raw material for soap making). Skin was used in leather making (soles for leather shoes, and belts). Quartering and the process of fat melting usually took place on the spot of hunting beluga whales. Therefore, the discovery of a fragment of the caudal vertebra during the excavations in Vologda, located at the distance of hundreds of kilometers from the place of whaling, appears to be of interest. Perhaps this was the tail of the whale delivered in winter time as part of a trade expedition from Kholmogory to Vologda. Given the version of a possible involvement of the inhabitants of the homestead into marine fishing, it can’t be ruled out that some bones were brought along as unusual souvenirs.

In neighboring regions, the earliest evidence of the development dates to the Mesolithic and Neolithic periods (excavations in Karelia, Pomorye, Karelian petroglyphs) [5, 7, 8]. As noted by Yu.A. Savateev, Karelian petroglyphs depict about 200 figures of marine mammals, among which beluga whales prevail. About 100 compositions of rock art are dedicated to scenes of sea hunting, including detailed images of the white whale. The author suggests that beluga whales swam into full-flowing mouth of the river Vyg where they were caught. Fishing gear included nets or harpoons thrown from several boats [8]. N. Vereshchagin identified bones of beluga whales (16 fragments) in the collections of bones from the excavations of 13 settlements of Karelia of the Mesolithic, Neolithic
and Paleometal eras in the lower river Vyag. Bones of other sea animals have also been recognized in the collection: the ringed seal, the seal, and the sea hare [8, p. 183].

The history of whaling in the 9th–18th centuries was considered in detail in 1914 by E. Weberman [6]. He gathered information from records in Russian chronicles, Scandinavian Eddic poetry, Arab sources, notes of foreigners. In the Middle Ages, in the 12th–15th centuries, the art of bone-carving emerged in Veliky Novgorod, which is confirmed not only by findings of objects of walrus ivory, but also by its waste products [5]. E. Veberman writes that in 16th–17th centuries Kola was the center of Russian whaling. From there whale fat was transported to Kholmogory, to the Dvina River as well as to Kargopol’. The Pechenga Monastery played a major role in the extraction and trade of whale fat [6, p. 26–27].

It is well known that the development of the Spitsbergen archipelago (Grumant), the main fishing centre in Arctic Pomorye, and the emergence of sea hunting there took place no later than the middle of the 16th century, and it increased in the 18th century, as confirmed by written and archaeological sources [9, p. 225]. In 16th–17th centuries, walrus tusks (“black fish bones”, “bones of walrus teeth”) were sent from Pomorye to Moscow in large quantities. Since 1649, free trade of walrus ivory had been banned in Muscovy, and it was ordered that walrus tusk should be handed over to the treasury.

Written sources indicate that products of Arctic sea hunting were used in Vologda in later eras. For example, expenditure and receipt cash books from the Archbishop House in Vologda in the 17th century contain records of whale fat [10; 11; 12]. Blubber (whale or seal fat) was used in Vologda as lubricant for carts, wheels, breast bands, etc. as well as medicine. Thus, in 20 December 1677 a bishop’s servant bought “fish fat to grease breast bands at the stables, at three threcopecks pieces”, and in October 1648, monk Faddei “purchased fish fat to cure a sick horse” [10, p. 283; 11, p. 591]. Later documents confirming the connection between Vologda and the Arctic, and, more specifically, the participation of Vologda residents in teams involved in marine hunting and exploring the northern islands, refer only to the 18th–19th centuries [7; 13; 14]. By and large, the hunters on the coast of Murmansk and the Arctic archipelagos came from Vazhsky, Dvinsky (mainly), Kargopol’, Kola and Olonetsk uyezds (districts). A historian S. Nikonov suggests that some of them could have been fish buyers but not fishermen. At the same time, the names of residents of Vologda and Totemsky districts first appeared in customs journals recording collected taxes from ships only in the second third of the 18th century [14, p. 183].

Among the participants in teams of fishermen in the North in the 18th century, there were Vologda residents Semyon Sukhanov (1761–1785) and his son Samson (mentioned in 1784–1785). In addition to them, in the period between 1798 and 1801, Ilya Bogdanov, Vasily Vlasov, Andrey Volkov, Gavrila Istomin, Alexei Karasov, Ivan Okishin, Fedor Pakhomov, Vasily Rogilev, Ivan Sharyppov were mentioned [7, p. 349, 353, 392–394; 13, p. 45–46]. Matvey Ivanov, the son of Kiselev, a Vologda merchant of the 2nd guild, was the owner of a sea fishing vessel “St. Nicholas”, which had belonged to Tot’ma merchant of the 1st guild Ivan Kuznetsov until 1798 (mentioned in 1797, d. 1798) [7, p. 330, 333–335, 379, 387–389, 395–397; 15, p. 7]. Matvey Kiselev, in a petition written to the Emperor in 1800 pointed out that he wanted “to test whether it would be better to practice whaling as well” on Grumant [7, p. 388]. It is worth pointing out the participant of fishing expeditions from the Tot’ma village of Kaplina – a peasant Alexei Kuskov (mentioned in 1797), a namesake (relative?) of Ivan Kuskov (1765–1823) – a townsman of Tot’ma who later became a merchant in Russia, and afterwards – the founder of Fort Ross in California [7, p. 334]. The information about one of the inhabitant of Vologda province – a participant in an expedition to Novaya Zemlya – comes from the notes of the 1790s by S.A. Pushkov, a solicitor of the Vygoretsky Monastery of old believers, [14, p. 212–213].

Undoubtedly, huge whale vertebrae were regarded as a curiosity by residents of Vologda area in the pre-industrial era, which led to their preservation and, in some cases, to their unusual use. Evidence of participation of people from Vologda in sea hunting is kept in museums of the Russian North (Veliky Ustyug, Vologda). There are large bones of “ancient animals”, some of which relate to the vertebrae of rorqual whale family. Unfortunately, in most cases, it is difficult to identify their provenance. A unique exhibit – a whale vertebra with a painted image – is stored in the collection of
the Vologda Museum-Reserve (Inventory No VOKM 5279) (figure 5). It came to the Vologda diocesan archives from the church in the village of Nyobdino, Ust-Sysolsky district, Vologda province (modern territory of the Komi Republic) as “the bone of a huge animal from the spinal part”. The vertebra was used as the basis for the icon “Transfiguration” in the late 19th century. The museum records contain the following description of the exhibit: “The whale’s vertebra was brought to Nyobdino in 1889 by a local native Andrei Latkin. The face of Jesus Christ, the Biblical plot of “Transfiguration”, Prophet Jonah and a whale which swallowed him (judging by the fanciful image, the icon painter never saw this marine mammal), angels, apostles and saints are depicted on a giant bone. There is an inscription that goes with the image: “Lord, accept from your unworthy servant as a sign of unforgettable memory. Brought from the Arctic Ocean during my trip to the North in 18 September 1889. Parishioner of the Church of Transfiguration in Nyobdino Andrei Mikhailovich Latkin”. The author or authors of the icon (it is possible that there were several people) are unknown. The dimensions of the vertebra are 890 x 850 x 620 mm. The name of Andrei Latkin as a participant of whaling expeditions is not confirmed by available written sources.

Figure 5. The vertebra of a whale with a painted image. The Vologda State Museum-Preserve of History, Architecture and Decorative Arts.

Another interesting exhibit comes from the Veliky Ustyug Museum-Reserve. There is an inscription “To Bortnikov” on one of the vertebrae of the whale (figure 6). This surname is not typical of the city of Veliky Ustyug, but it is known that in 1785–1791, the architect of Vologda was P.F. Bortnikov famous for the construction of a stone bridge in the city of Vologda preserved to this day. Perhaps, the inscription explains how the object came into being. It could have been put aside as a significant gift by one of the whalers or merchants from Ustyug in gratitude to the provincial architect for the construction of the house. Approximately at the same time, houses of a special design appeared in Ustyug, in particular, the house of the merchant Shilov, a sailor and a map maker of the Aleutian Islands. Alternatively, given wide intellectual horizons of the intelligentsia at the end of the 19th century, the vertebra could have been requested by P.F. Bortnikov and intended for his research
purposes. The untimely death of the architect, who died on the way from Tot’ma to Vologda, might have been the reason why the vertebra remained in Ustyug.

![Figure 6](image)

**Figure 6.** The vertebra of a whale with the inscription “To Bortnikov”. State historical-architectural and art museum-preserve of Velikiy Ustyug.

Other large bones of “ancient animals”, which are the vertebrae of whales, are also kept in the museums of the Vologda region, (most likely, bones of rorqual whale family): Veliky Ustyug – vertebra (length 71 cm, disk 19.5 x 27 cm), Vologda – vertebra (width 21 cm, disk diameter 31 cm), vertebra (length 89 cm, width 62 cm, height 85 cm). In total, at present we have identified seven bones of northern marine mammals in the region, which were discovered between the 14th and the 19th century. Large chronological gaps between archaeological finds, written documents and museum exhibits make us reconsider another proof that was perceived sceptically by contemporaries. A.F. Szydlowski mentioned Anton Timofeevich Starostin, a peasant from the Vologda province, among other Russian hunters on Spitsbergen. This peasant appealed to the government in 1871 with a request to be granted pre-emption rights to the natural resources of Spitsbergen on the grounds that his forefathers had hunted there even before the foundation of the Solovetsky Monastery (1436). His grandfather Ivan Starostin (1780–1826) was famous for having wintered 32 times on Spitsbergen and hunted in the area once abundant in beluga whales. Anton Starostin’s request was rejected [13, p. 44–45, 50–51; 15, p. 1; 16, p. 90]. However, after the discovery of the bones of sea animals in Vologda in the medieval cultural layer, this story receives indirect confirmation of reliability or, at least, sheds more light on oral traditions preserved in the families of Russian hunters. Thus, written and museum sources enable to explore long-standing relationships between the Vologda region and the Arctic; the participation of Vologda residents in marine hunting and the discovery of the northern islands; the continuity of commercial and fishing specialization in the 17th–19th centuries [14; 15; 17].

3. Conclusion
Trade caravans with foreign goods, as well as with products of the most northern hunting and fishing activities, passed through Vologda, which for a long time had been on the main trade route from Kholmogory and European countries to Moscow. The presence of bones of marine mammals in the archaeological cultural layer of the city of Vologda allows us to confirm the role of these products in the trade, or even direct participation of Vologda residents in the Arctic sea-hunting no later than the 14th century. Undoubtedly, further paleozoological studies of archaeological collections will widen our scholarly knowledge about the structure of the economy and trade of Vologda in the medieval period, which is poorly represented in written sources.

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References

[1] Adamenko O N 2011 Report on archaeological work on the territory of the Vologda settlement in 2011 (Vologda, Parkovy per 3) Archive of the IA RAS 2014 R-1. (in Russian)
[2] Adamenko O N 2015 The epigraphic find from the excavations of the Vologda ancient settlement in 2011 (Vologda, Parkovy per 3) Archeology of the North: materials of the VI archaeological readings in memory of S T Eremeeva 6 (Cherepovets: CherMO) pp 127–132 (in Russian)
[3] Adamenko O N 2014 New data on the early history of the city of Vologda (based on 2011 excavations) Proc. of the IV (XX) All-Russian Archaeological Congress in Kazan 3 (Kazan: Fatherland) pp 208-210 (in Russian)
[4] Zakharov S D 2004 The ancient Russian city of Beloozero (Moscow: Indrik) 592 p (in Russian)
[5] Smirnova L I 1996 Novgorod walrus tusk ridges. Novgorod and Novgorod Land History and archeology: Sat. Art. 10 (Veliky Novgorod: Novgorod Museum-Reserve) pp 70-80 (in Russian)
[6] Weberman E 1914 Izvestia of the Moscow Commercial Institute Commercial and technical department Prince 2: Whaling in Russia (Moscow) 312 p (in Russian)
[7] Dadykina M M, Kraikovsky A V and Layus Yu A 2017 Pomeranian crafts on Spitsbergen in the XVIII – early XIX century Study. Documents (Moscow-St Petersburg: Alliance Archeo) 504 p (in Russian)
[8] Savateev Yu A 1991 Fisheries and marine fisheries in Karelia Fisheries and marine fisheries during the Mesolithic – the early metal in the forest and forest-steppe zone of Eastern Europe (Leningrad: Science: Department of Leningrad) pp 182–202 (in Russian)
[9] Starkov V F, Zavyalov V I and Derzhavin V L 2019 Forty years of Russian archaeological excavations on Spitsbergen Brief Communications of the Institute of Archeology 255 (Moscow: IA RAS) pp 221–229 (in Russian)
[10] Polyakov I A 2018 Prices for products and goods in Vologda of the 17th century (based on materials from the parish books of the Vologda Bishop’s House) Bulletin of Church History (Moscow: Pravoslavnaya enciklopediya) 3-4 (51-52) pp 276–302 (in Russian)
[11] The Economy Books of the Vologda Archbishop House of St Sophia in 17th—early 18th century 2018 (Moscow-St Petersburg, Alliance Archeo) 896 p (in Russian)

[12] The Books of money income and expense of the Vologda Archbishop House of St Sophia and the tax-books of churches belonging to the diocese of Vologda. The 17th – Early 18th century 2016 (Moscow-St Petersburg: Alliance Archeo) 872 p (in Russian)

[13] Vise V Yu 1948 Russian polar sailors from industrial, commercial and service people of the 17th–19th centuries: Biographical dictionary (Moscow-Leningrad: Publishing House of the Glavsevmorputi) 72 p (in Russian)

[14] Nikonov S A 2018 The monastic and peasant fishing colonization of the European Arctic in the 16th–18th centuries: doctoral thesis (Murmansk) 557 p (in Russian)

[15] Svalbard in Russian history and literature 1912 Comp. A F Szydlowski (St Petersburg: typ. Pestilence) 64 p (in Russian)

[16] Gorter A A, Gorter V T and Minaeva T S 2011 Monuments of Pomeranian commercial culture at 80 degrees north latitude Solovetsky Sea: Historical and Literary Almanac (Arkhangelsk-Moscow: North sea shipping) 10 pp 86–96 (in Russian)

[17] Gurina N N 1991 Some general questions of the study of ancient fishing and marine fishing in the USSR Fisheries and marine fishing in the Mesolithic, an early metal in the forest and forest-steppe zone of Eastern Europe (Leningrad: Science: Department of Leningrad) pp 5–24 (in Russian)