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The Great Bridge of Novgorod: Republican History through Material Evidence

Introduction

Compared to the studies of West European medieval and early modern republics, the study of the Republic of Novgorod the Great appears to be of great interest and is intensely studied because of its equally important use of historical and archeological sources. The reason for that is that public archives from the medieval times are either missing or have never existed. Thus, if the extensive excavation in 1932 had not been launched, historians would still be unaware of the general principles regulating city life and the work of magistrates.

A systematic and careful archeological investigation resulted in a vast amount of findings. This allows us - after 75 years of intense archeological research - to speak of its compensatory effect, in the conditions of scarce written sources on the Novgorod history in the 10th-15th centuries. In the last decades, due to the accumulated information, the central themes in Novgorod studies have become such important issues as the foundation and early history of the city, the development of city planning, the evolution of political institutions, a dynamic of the cultural interaction with Novgorod's eastern and western neighbors. Yet, the main theme in Novgorod history, which emerged in the period of historical romanticism and persists even nowadays, is the theme of Novgorod liberties, republicanism and the democratic tradition of Northwestern Russia. A study that employs archeological and historical sources in a complementary way clearly demonstrates that Novgorod displayed republican features already in the 12th century.

During the 75 years of the archeological study of Novgorod the Great, about 30,000 sq. meters have been investigated, which accounts for about 2 percent of the entire area of the medieval city. The thickness of the cultural layer is rather surprising: it usually ranges from 2 to 5 meters, and in some places exceeds 8 meters. In the digs carried out in the different parts of the republican city, about 100,000 archeological finds were registered; several thousand buildings and objects of infrastructure were examined, including dozens of wooden street pavements. Of course, among the most important findings are the birchbark charters, the first of which was found in 1951. These documents – largely those of civil law – have revealed an existence of a specific historical Novgorod dialect of the ancient Russian language, and have perfected our knowledge of business, religious and family life of medieval Novgorodians.¹ But in the absence of extant public archives these sources did not allow for a systematic and disciplined comparison of the main political institutions of, say, the Italian republics of the 12th-15th centuries and Novgorod the Great. The chronicles could not be a very reliable source for such comparisons for obvious reasons. So, it was natural that at some point an idea appeared that we could compare Italian and Russian Republics based on some similar tangible concern in city life, information on which could be discovered archeologically in the Russian case, thus checking the scarce or unreliable statements of Russian chronicles. Hence, the Great Bridge in Novgorod, the only multi-season bridge in Russia in the 12th-16th centuries, and thus an object of huge public spending, offered itself as a very convenient point of comparison. If we could not compare the political institutions of Italian and Russian Republics based on public archives, we could compare their *res publicae*, if we are allowed to use a famous category from the Roman law.

The Volkhov River and Novgorod City Formation

The Great Bridge in Novgorod has for a long time escaped the attention of scholars. While archeologists seem to have a lack of resolve, funds or reasons to research its remains on the bottom of the Volkhov River, documents about the bridge's history are scattered in various types of archival sources. Thus, our recent dig may be considered a serious breakthrough in research on one of the most important objects in topography of Novgorod the Great. The complexity of this research is a result of the interdisciplinary nature of the project and the widest range of sources analyzed. Underwater archeological excavations on the bottom of the Volkhov River were launched in 2005 and continued in 2006-2008. The primary objective was to detect archeological remains in the area of the Great Bridge and find traces of medieval economic and political life there.

The Volkhov is the only river that flows out of the adjacent Ilmen' Lake, although around one hundred big and small rivers flow into it. Almost the entire territory that surrounds Ilmen' is a flat plain, which is 20-60 meters above the Baltic Sea level. The environmental characteristic of that territory, determined by its history and climate, is its extreme moisture and the prevalence of precipitation over evaporation. The Ilmen' Lake is an outstanding natural phenomenon since its seasonal oscillation in depth and expanse may reach an amplitude of three to four times. This lake originated as a consequence of glacier melting and underwent the process of deposition (of sands, clay, etc.); sediments were carried by melting waters and eroded the surface that was formed by the glacier. A final erosion of the glacier caused, presumably, a powerful rise in the earth's layer, where the glacier pressure was maximal, and it decreased at the periphery of the glacier. Thus, a lop-sided neo-tectonic rise of the northern part of the territory caused the formation of the Ladoga and Onega Lakes to the south. Advancing waters created deep gulfs along the lowered parts of the relief. At the place of the contemporary Neva River, the rapid outflow of the Ladoga waters broke through a thin strip of land and headed towards the Gulf of Finland, having thus created the riverbed of the Neva. Concomitantly, the level of water in Lake Ladoga and, then, Lake Ilmen' decreased substantially. As a result, the River Volkhov, linking Ilmen' and Ladoga, took its present shape (Fig. 3.1). This event happened around three thousand years ago.

Thus, the Volkhov is a young river, although its bed was part of an ancient valley. The Volkhov, which is approximately 228 km long, is one of the largest rivers in Northwestern Russia and has a strictly longitudinal south-north direction. The river basin area is 80,200 sq. km; among its tributaries one can find ancient pre-glacial rivers as well as streams created by the glacier.² Due to the Volkhov's young age, the river valley sides were not affected by the prolonged erosion and it does not have shore terraces. The riverbed virtually does not migrate along the valley, and its curvature exceeds an ideal length by only 16 - 17 percent.

The current level of spring and fall water inundation is rather high, but the main sediments carried by the rivers flowing into Lake Ilmen' are deposited at the bottom of the lake. Given that the Volkhov is the only river flowing out of Ilmen' and going down to Lake Ladoga (from which the water flows through the Neva to the Baltic Sea), a strong current prevents clay formations at the bottom of the Volkhov in its upstream parts, that is, where Novgorod's historical center is located. In winter time, the part of Volkhov in the historical center of the city freezes up only when the temperature falls below -15 C. The maximum water level rise during high water that starts in April may reach 8 meters and the current speed is 5 - 7 km/h (1.3 - 1.7 m/sec). Visibility under

water does not exceed 0.1 meter most of the year; only in winter does it increase to 0.7 meters. A freshet period lasts from April to July as a consequence of a low slope of the riverbed and the given pressure of the huge basin of the Ilmen' Lake.

A reverse direction of the river flow is a frequent phenomenon on the Volkhov. It was registered by the chronicles in 1063, 1162, 1176, 1325, 1373, 1376, 1415, 1525 and continued occurring until recently.³ One of the most striking examples is given to us by a chronicle with an episode involving Novgorod Archbishop Ioann. The people of Novgorod tried to exile him by putting him on a raft, but the waters carried him upstream instead, under the Great Bridge and all the way to the Yuriev Monastery (now – the most ancient monastery of Russia), which is situated next to Lake Ilmen'.⁴ This citation from the legend about the life of Archbishop Ioann is supported by the events described in the *First Novgorod Chronicle* for the year 1176: "Volkhov had been flowing upstream for 5 days".⁵

Volkhov's water flow regime made bridge construction extremely inconvenient – a traditional Russian pontoon bridge risked being destroyed by the swift flow of the river or by floating ice, whereas winter crossings over the ice were simply impossible. The Novgorod Chronicles contained multiple reports on the catastrophic consequences of floods for the bridge: "Water in Volkhov was as high as it has never been before... and it destroyed 10 supports of the Great Bridge" (1338); "The same year a massive ice drifted from the lake and broke one support of the Great Bridge" (1406); "The water was high ... and carried down the Great Bridge" (1421); "that cold night ice broke 7 supports of the Great Bridge" (1436).⁶

This severe environment had a crucial impact on the choice of bridge designs by the people of Novgorod. In order to have a reliable and permanent connection between the parts of the city that spread on the opposing banks of the river, they had to think of constructing a multi-season bridge very early in the history of the city. Of course, questions on the date of the first Novgorod bridge and its location are directly linked to a more general problem of the development of the city's infrastructure. The infrastructure was rebuilt from time to time. Hence, the bridge moved; this is in fact what the chronicles tell us. The Novgorodians were "building a new bridge over Volkhov on the side of the old one" (1144),⁷ or "the same year [they were] building a new bridge over Volkhov on the side of the old one" (1188).⁸

Novgorod was founded at the Volkhov riverhead, which had a dense network of settlements already in the first half of the 10th century. The earliest inhabitants settled on the hills stretching along the Volkhov and rising 3 - 6 meters above the ground level, which secured their dwellings from drowning during spring freshets. In general, a dense settlement of the Slavic population at Volkhov is explained by the relative source of soil fertility, particularly in the area where the Volkhov flows from the Ilmen' Lake. The main economic activity of these Slavic settlers was agriculture, although the nobles of Novgorod were gradually drawn into international trade that spread over Eastern Europe in the early Middle Ages.

The main trading way that crossed the territory of the future Novgorod Republic was the Baltic-Volga route, which connected Northern Europe to the Arab East in the 8th – 10th centuries by means of a ramified network of lakes and rivers. The Volkhov in this trade route thus connected the Baltic-Ladoga region to the Rus' inner lands. Therefore, this river provided a key access from the north to the watershed between the basins of the Baltic and Caspian Seas. This watershed area was the source of the main rivers of the Eastern European plain: Volga, Dnieper and Western Dvina, which were the routes of merchant expeditions in the Viking era. The presence of the Vikings is registered by the archeological data over the whole territory of Rus' starting from the 8th

century. Their participation in organizing transcontinental trade between Europe and Arab countries on the territory of the Rus' is beyond doubt. The main items that traveled along the Baltic-Volga trade route were northern furs and Oriental silver.

One of the largest Viking settlements on the trade routes in Eastern Europe was the *Gorodische*, which was a fortified settlement, known from 1103, and occupying the first hill on the right bank of Volkhov at its source area. A Russian name for this settlement, coming from the term for "town" in Russian (*gorod*), leaves no doubt that it was intended to mean "an old town" and thus a predecessor of a "new town", in Russian – *Novgorod*. Regular excavations that were undertaken at the site of the initial Viking settlement since 1975 revealed traces left by the presence of these Scandinavians, who considered the *Gorodische* as a key fort locking the entrance to the Ilmen' Lake. Military and administrative functions of the *Gorodische* are well illustrated by Russian chronicles, which tell us about the invitation in 862 of a Scandinavian Prince Rurik to establish peace and order on the territory of Slavic settlements in the area of the Volkhov riverhead. The trade axis between the north and the south stabilized with the 882 crusade led by Prince Oleg from the Novgorod area to Smolensk and then Kiev. The link between Novgorod and Kiev that emerged after this crusade created a bipolar structure of an ancient Russian state that functioned until the mid-11th century.

The expansion of the settlement zone in the area of the Volkhov source gradually led to the shift of the center of economic life downstream from the initial Viking fort. The *Gorodische* hill, which had been a prince residence since the times of Rurik and Oleg, did not have enough space for the development of city trading quarters. Already in the 920-930s, scattered houses appeared at the place of the future Novgorod. They merged into settlements on opposing river banks by the middle of the 10th century. The settlement on the right bank that was in the immediate vicinity to *Gorodische* and princely power, which could also enforce peaceful trade, thus became first, a merchant village and eventually a city marketplace called the *Torg* or the trading side of Novgorod and has been registered in the chronicles since the 11th century. The opposite side of the river became the seat of religious authority, the Archbishop of Novgorod, whose residence next to the Cathedral of St. Sophia, was surrounded by the walls of the citadel.

The first residents of Novgorod, judging by the excavation data, were members of the Slavic aristocracy seeking to have their houses in an immediate proximity of a trading route, i.e. the river Volkhov. Novgorod was also the residence of a prince who exercised a military and judicial protectorate over the Novgorod people during the initial stage of the city's history. Princess Olga undertook a crucial move in the mid-10th century by attaching the landholdings in the territories in the vast Ilmen' Lake basin to Novgorod. In 946 (947), she led two punitive expeditions to vanquish the alternative centers of Slavic tribal life on the Rivers Msta and Luga. Upon the termination of these tribal centers she established a tribute collection, while forcing local nobility to move to the area of the Volkhov source. This was how close relations emerged between the city and the vast territories to the west and east of the Volkhov River; it was based on consanguinity and the economic interests of Slavic tribal aristocracy.⁹

Already in the beginning of the 11th century, after the adoption of Christianity, the Novgorod population significantly increased. People began to settle in the areas around the first built streets. On the left bank of Volkhov, the central Great (*Velikaia*) street which was parallel to the river, is crossed every 60-70 meters by new streets running from the riverbank to the adjacent fields. Almost all of the names of these dozen or so streets are derived from personal names: *Lukina* from Luka, *Ludogoshcha* from Ludogost, etc. In a well-founded opinion of a historian and an archeologist Mark

Aleshkovskii, these are the names of first owners of large boyar houses, or their patronymics. These boyars built “their own” streets together with their neighbors-tribesmen.¹⁰ Needless to say it was not a chaotic process, rather it was under the control of the prince administration. Another important through-passage, the *Slavnaia* street, crossed the trading side, following the route of the ancient road connecting the place of the initial Viking settlement to the prince residence, which now moved onto the city territory. Most of the other streets intersected with it at different angles and ran towards the Volkhov riverbank with its shopping rows and disembarkation quays. All of these details are very much reminiscent of other merchant settlements in different parts of the Baltic region in Viking times.

From the reconstruction of a street network based on multi-year excavations it is evident that already very early many main city streets started to spread from the river while the bridge over Volkhov was the main knot in this structure of city communications (Fig. 3.2). Thus, the city could not live a full life without a permanent bridge over the river, which almost never froze. The earliest reliable reference to the bridge in Novgorod dates back to 1133. After that it is regularly mentioned mainly in connection to repair and renovation works following floods and fires:

1144 – “Constructed a bridge over Volkhov, by the side of the old one, a completely new [one was built]”; 1229 – “Erected a Great Bridge, new and higher than the old one”; 1336 – “Completed a new bridge”, after an event in 1335, when “ice and snow brought to Volkhov broke 15 supports of the Great Bridge”). The name “the Great Bridge” itself appeared only in 1220s: “That autumn water was high in Volkhov: it flooded hay by the lake and Volkhov banks. Then the wind broke ice on the lake that had been frozen already for three days and brought it all to Volkhov, which dislodged 9 supports (*gorodni*) of the Great Bridge and brought eight of them to Pitba just by St. Nicolas Church and the ninth one was destroyed completely on the 8th of December, on St. Patapii holiday”.¹¹

Many attempts to determine the exact location of the oldest bridge have been undertaken based on such evidence, but they were largely unsuccessful. The reason was the absence of reliable topographic data on the location of where the bridge touched the riverbanks on either the St. Sophia side or on the trading side. Researchers knew that the bridge did not simply connect the Volkhov banks, but it also established a *via principia* between the key sites of city life – the market and the prince’s residence on one side and the citadel, which housed the city cathedral of St. Sofia and the archbishop’s residence on the other.¹² Towards the north and south of the citadel (named *Detinets* in Russian, coming from the ancient Russian terms for the womb and children), on the St. Sophia side, spread two of the five city boroughs called “ends”.

As was already mentioned, on the opposite bank of the river one could find the *Torg*, i.e. the city market, which occupied a long and wide strand along the river. The location of the first market place is not precisely established yet, although already in the 12th century its location is obvious, as it is flanked by stone churches erected by the Novgorod princes. A spatial arrangement of the city market remains understudied, despite large-scale excavations carried out in the 1930-1940s: we still cannot pinpoint the exact locations of different trading rows on the city map.¹³ Therefore, historians mainly refer to the documents of the 16th-17th centuries when describing the territory of the market.¹⁴ In all accounts, the market centerline was the Great (*Velikii*) market row branching off from the Slavnaia street and then entering the Great Bridge. Other rows, the number of which reached 43 in the 16th century, originated from the Great Row and created a complex web determined by a geographical relief of the place.¹⁵

Thus, the line of the oldest bridge must lie between the end of the Great Row on the trading side and an entrance to the citadel on the St. Sophia side. However, unlike a fixed location of the Great Row, the location of the citadel gates apparently moved with the course of time. The first chronicler's note on their position in the city topography is given in the record on the foundation of the city gate church dedicated to the Sacred Girdle of Virgin Mary in 1195. Unfortunately, this chronicle object still has no supporting archeological evidence. Since the end of the 12th century and until the 15th century, when the present line of citadel walls were built, the location of the church and the gates themselves undoubtedly shifted. At present, the most feasible hypothesis is that the end of the bridge on the St. Sophia side was just off of the contemporary arch of the Prechistin Gate of the Novgorod Kremlin, which fully corresponds to the ancient relief of the place and arrangement of the oldest citadel fortifications.¹⁶

Very little information is available about the structure of the bridges over Volkhov during the period of Novgorod's independence (10th - 15th centuries), as well as about the overall old Russian bridge construction. As a rule, scholars note that the bridge construction in Rus' started in ancient times and that the bridge structures comprised 2-3 rows of horizontal logs resting on piles that supported this narrow pavement. The remains of such structures were discovered during excavations in Moscow; they have been in use until recently in the Russian north.¹⁷ More complicated bridges, to which the Novgorod Great Bridge belonged, employed the so-called *gorodnia* type of support. Russian historiography produced a consistently uniform opinion in regards to them, judging a *gorodnia* to be a timber crib filled with sod and stones, which made the foundation of the bridge rigid and stable. This opinion in all likelihood rests on the use of the term *gorodnia* in early Russian sources to refer to both bridge supports and to log constructions used in Ancient Rus' fortifications. The structure of a typical fortress *gorodnia* was carefully researched during the excavations of the ancient walls of the Novgorod citadel. Indeed, it was a four-cornered oak log construction filled with what the archeologists call "the cultural layer" and joined to the wall line.¹⁸ Also, studies done in the history of early Russian bridge construction draw extensively on the analogy of bridges with crib piers that survived until the 1960-70s on the northern Russian rivers.¹⁹ Due to these analogies, the historical Volkhov Bridge in Novgorod, despite the absence of any factual evidence, acquired a reputation of being a crib support bridge.²⁰

This is far from a foregone conclusion, however. According to manuals on wooden bridge construction published in the early 20th century, for example, the choice of the structure of bridge supports was made depending on the river bottom. In one of these manuals one can read that timber cribs (piers) are used "with rocky and very loose soil riverbeds that prevent driving piles". By contrast, another type of bridge support consists of "driven piles and elements that make these piles into a firm and stable system. In Russia this is the most popular type of piers".²¹

So, in the absence of a clear understanding of the different type of bridge supports before the archeological work done on the bottom of the Volkhov, one could suggest several equally plausible hypotheses. Chronicle miniatures and iconographic pictures of the Great Bridge (in the 14th-17th centuries) allow for the suggestion of two types of bridge support structures: crib and pile (Fig. 3.3). The bridge apparently was not high, which is seen from a number of sources. For example, in the above-mentioned story about "the miracle of Archbishop Ioann", one can read that the Novgorod people put him on a raft and set him on the water down from the surface of the Great Bridge.²² A second episode dates back already to the 16th century, part of the Pskov Chronicle: "The same year water was high in Novgorod, it flooded many monasteries and houses and it could be drawn from the Volkhov Bridge with a hood."²³

The Great Bridge in the City Infrastructure

The first medieval timber items, which were found during the 2006 winter excavations and allowed for the establishment of their dates, suggest that in the 13th-14th centuries the bridge was approximately stationed in the place described above, spanning from the Great Row on the trading side of the city to the Prechistin Tower of the citadel on the St. Sophia side. However, many historical representations of the bridge show an obtuse angle in its middle. This shape might have not been there from the beginning; instead it may have been a result of changes in the topography of the St. Sophia side, particularly of the expansion and rebuilding of the citadel walls. This hypothesis on the level of graphic reconstruction has already been proposed before. One can rely on archeological evidence to support this hypothesis, because of the composition of some archeological findings around a bridge timber crib in the center of the river and around the next crib closer to the Prechistin Tower. That is, after the bending of the bridge, if one went from the trading side to the citadel side, artifacts are qualitatively different. Artifacts found around the “bent” area of the bridge do not include ceramics older than the 16th century, while the overall number of artifacts there that date back to the Novgorod republican period is also insignificant.²⁴

Indirect information about changes in the city structure, gathered from historical and archeological sources, might help to identify shifts in the bridge’s location (Fig. 3.4). The bridge, as one of the most important elements in the city’s planning structure, was a very “sensitive” indicator of changes in city development. The situation of the 1330s is very representative in this respect: the central part of Novgorod underwent crucial changes in this period (partial reconstruction of the citadel fortifications in stone, changes in the internal layout of the citadel and an erection of an outer line of city fortifications, etc.). It is not accidental that we find mentions of three subsequent renovations of the Great Bridge in 1336, 1337 and 1340. Even in the absence of direct mentions of the bridge construction or its renovation, one should carefully study the signs of possible changes in the planning of the trading areas and the center of the city in general. It is quite obvious that changes in the location and the construction of the bridge are closely interrelated with the citadel and the market place, which dominated the layouts of the St. Sophia and the trading sides respectively.

Not surprisingly, they were also linked with changes in factional struggles and elite politics in the city. As academician Valentin Ianin pointed out, during the 14th century “a struggle for the *posadnik* [elected city governor] office constantly takes the shape of a struggle between the trading and St. Sophia sides”.²⁵ Thus, even the unified city *veche* (general public assembly) meeting could be abandoned, and two simultaneous meetings of opposed popular assemblies on both sides of the river would be convened. This could be the best indicator of political rivalry in that period. For example, the *First Novgorod Chronicle* informs us in the record for 1342: “And Ontsifor together with Matthew rang the bell for the gathering of *veche* by the St. Sophia Cathedral, and Fyodor together with Ondreshko rang the bell for the other one at Yaroslav’s Court [site for the residence of the prince, next to the marketplace]”.²⁶ And the bridge united and separated such factions, gathered in different city hallmark sites (Fig. 3.5).

Let us thus take a closer look at the general change in the city layout. The chronicles contain multiple accounts of construction works in the citadel in the first decades of the 14th century. The archeological data allows for the identifying of the following sequence of works: first, a huge ditch was dug out along the perimeter of the

new walls (30-35 meters wide and 5-6 meters deep). The cultural layer and loams from this ditch were used in building a powerful soil-timbered rampart-shaped foundation. These works undoubtedly changed the topography of the central part of the St. Sophia side: dozens of city houses were removed because of the construction of the walls of the first citadel, while the moat and the rampart line took their place. The southern part of the new citadel was subjected to a complete reconstruction; it received new main streets fitting a new topography of the citadel. All these changes are well reflected in the data acquired during the excavations in the contemporary city Kremlin.²⁷

Thus, the chronicle mentions consecutive constructions of churches in the stone gate towers of the new citadel:

1296 – The Church of the Resurrection of Christ (a western entrance);

1297 – The Church of Saint Transfiguration (a southern entrance);

1305 – The Church of the Protection of Virgin Mary (a south-western entrance);

1311 – The Church of Saint Vladimir (a northern entrance).

Unfortunately, among these accounts we do not find any mentions of the Holy Girdle of Virgin Mary Church (Prechistenskaia Tower), which was at the entrance to the citadel from the side of the Great Bridge. Subsequent erections of stone walls and gate churches were undoubtedly a grandiose construction project, which might have taken years and even decades to complete. After constructing four gate churches at the turn of the 14th century and laying a foundation of the stone city in 1302, there is a considerable break in the chronicle accounts up until the moment when Archbishop Vasilii Kalika (translated as “Basil the Cripple”, since he limped) took up the Novgorod Cathedral. A year after his election, in 1331, this archbishop “laid a foundation for a stone city from the St. Vladimir Church to the Virgin Mary Church, and from the Virgin Mary Church to the Saints Boris and Gleb Church”.²⁸ Mentioning of the gate churches in the description of the sequence of walls construction supports the argument that Vasilii Kalika continued implementing the project launched by his predecessors at the Novgorod Cathedral. After his efforts, according to the chronicle, the construction of the citadel was finally completed: “a stone city has been built in two years with God’s help”.²⁹

Two years later Vasilii Kalika strengthened the Novgorod fortifications at the city outer limits. Also, in 1335 the archbishop together with Governor Fiodor Danilovich and a magistrate called thousandman (*tysiatskii*) Ostafii erected a stone fort on the Trading side. These construction works, of which we know from the fragments of stone walls excavated by Artsikhovskii and Mongait, were carried out with the use of the same techniques as were applied in the citadel.³⁰ Altogether, all of this construction, undertaken by Vasilii Kalika, looked like a well planned improvement of the city’s defense. At the same time, encircling the center of the St. Sophia side with the stone walls and fortification of south-eastern city borders on the trading side became a basis for a new planning system in Novgorod, which was further developed at the end of the 14th century by building a new outer earth rampart and an adjacent moat.

The chronicle holds an interesting record for the year 1336: “On June 25 Archbishop Basil built a stone church of the Entrance to Jerusalem of our God Jesus Christ... A new bridge over Volkhov was built the same year... The same year God-loving Archbishop Vasilii built a new fence around the Saint Sophia, and made gilt copper doors for the Saint Sophia”.³¹ Interestingly enough, all of the elements mentioned here are linked architecturally. Both a southern wall of the Entrance to Jerusalem Church, built in the 18th century on the place of the mentioned 1336 church,³² and the Kremlin Prechistin Gate find themselves along the same line that in the end enters the historical Volkhov Bridge. This straight line is a spatial axis connecting all

construction undertakings of Vasilii Kalika in 1336. Thus, the choice of the place for building the Entrance to Jerusalem Church becomes explained; the name of this church rather straightforwardly compares the entrance to the archbishop court (which was situated after the fence of St. Sophia Cathedral) to the celebration of Christ entering to Jerusalem.

In this regard one can also recall a passage from the famous epistle of Vasilii Kalika to Fiodor, Archbishop of Tver, which is in the *First Novgorod Chronicle*. In his argument on how to look for both earthly and intelligible paradises Vasilii says: “Brother, I saw myself the following: when Christ came to Jerusalem for voluntary suffering, he closed the city gates himself and since then they stay closed”.³³ This phrase might help us understand the logic of the sequence of construction works in the 1330s: first, the archbishop built the stone walls of the city fortress and then he fenced off a sector within its territory – the archbishop court with the Entrance to Jerusalem Church as its gateway, and from the side of the Great Bridge. He also installed gilt-copper doors on the portal of the St. Sophia Cathedral, which faced the same church and the bridge. One should emphasize that it was the southern side of the cathedral that stood on the line connecting the new bridge, the new church and the new fence of the archbishop court.

The bridge built by Vasilii Kalika was broken by ice drift already in the next year, but due to the archbishop’s insistence it was restored. Since then, the bridge location did not seem to shift drastically, because the line of the St. Sophia fence, of which we know from the 1960s’ excavations, went in the direction of the present Prechistin Arch facing the river bank.³⁴

Underwater Excavations: From Artifacts to Historical Hypotheses

In addition to the factors of swift water flow, the temperature regime and seasonal fluctuations in water level; it was the geomorphologic character of the Volkhov riverbed, which significantly influenced bridge construction. Also, this character was crucial in answering the question on whether we could still find on the riverbed artifacts, lying there since the Middle Ages. Theoretical conclusions that suggested that diving and digging would not be fruitless were re-checked by the results of engineering and geological explorations of the riverbed and banks of the Volkhov, carried out between 1952-1991 for the needs of building city embankments and embarkation quays, but also for building projects of bridges, pipes and other communications crossing the river.

At present, the overall archival data on engineering and geological research of the Volkhov riverbed (within contemporary city limits) comprises of 12 complex reports. The main object of this research was the stratigraphy of bottom and bank river sediments. Altogether 246 drilling specimens have been analyzed.³⁵ Parts of the river that geologists investigated are located close to the supposed place of the Great Bridge, but also towards the downstream and upstream of the Volkhov River. On the basis of investigational reports, one can make the following conclusions.

First, the riverbed consists predominantly of gravel sands of varying firmness. This is determined by the geological constitution of adjoining territory (an ancient delta of glacial stream in which rough materials were deposited while thin ones were carried down to the lake). The most convincing data that confirms this observation can be found in the materials acquired from engineering and geological holes drilled before the erection of a pedestrian bridge in the 1980s, constructed in the zone of location of the historical Great Bridge. In this area the holes in the bottom sediments revealed

predominantly gravel sand, which was 8-13 meters thick. Beneath the sand there is an underlying of glacial loams measuring 3-5 meters thick. Under these glacial loams, very thick clays of Devonian genesis were discovered. Second, during the freshet period, when rivers carry a lot of fragmentary materials into Ilmen' Lake, a strong stream of water prevents thin and small particles from depositing on the riverbed. The main period for sediments depositing is in the summer and winter with low water. During this period due to the absence of surface wash-off and low water, a far less amount of fragmentary materials is carried away. With the loss of stream speed, silt deposits start accumulating on the river bottom and which are washed off again in the freshet period.

Thus, before the start of underwater archeological excavations of possible wooden remains of the Great Bridge, it was established that the river bottom in the search zone should not be covered with a thick layer of silt. This conclusion was made after the analysis of engineering and geological materials had significantly simplified setting the task for underwater-archeological excavations and their methodological and technological aspects. The actual 2005-2006 underwater excavations mainly confirmed pre-existing geological data on the composition of the bottom sediments. But in the area surrounding the existing pedestrian bridge, where we were looking for the remains of the historical bridge, underwater researchers unexpectedly discovered a laminated structure of riverbed layers and a corresponding location of archeological evidence in them. It might have resulted from the exposure of this section of the riverbed to a long-term technological impact, which affected the hydrodynamic qualities of the water stream. Alternatively, layers might have been formed under the impact of changes in the location of the bridge supports and in their structure.

A stratigraphy of the Volkhov bed in the search zone includes the following layers:

Layer "A" – surface consists of loose river sand and gravel boulder slid from recent bridge supports. Removing gravel boulders and washing off loose sand deposits from trenches (0,3 – 0,8 meter wide). Opened an underlying sandy loam layer that contained coins dating back to the 18th-19th centuries.

Layer "B" – sandy loam underlying layer "A" is rich with fragments of ceramic dishes. In trenches № 1, 2 this layer borders a loamy layer "C" and another layer was identified in trench № 3, which was assigned a name "B₂".

Layer "B₂" – sandy loam rich with shell deposits; this layer is relatively loose and has almost no anthropogenic inclusions; sabulous clay layer B₃ containing artifacts (a large number of ceramics, axes) opens up in some parts of the trench; a loamy layer "C" begins on most of the territory below.

Layer "C" – loam with significant quantities of wood chips. All the small copper coins from the 15th-16th centuries (*pula*) were found on the border of this layer with layers "B" and "B₂". It was also this layer that brought out most of the individual finds dating back to the Middle Ages. The layer underlying the one that carries cultural artifacts was not clearly identified in trenches. Washing off loamy layer "C" was continued at 0.5 meters below the level where artifacts were discovered and still brought out chips with axe traces.

Overall results of the research showed that the riverbed in the area unaffected by the bridge constructions is laid with firm and moderately firm graveled sands. The thickness of these sands is approximately 1.5 meters. Sands are underlain with lake loams that are 0.5 – 1,2 meters thick. All archeological findings belong to the sand layer. Underlying loams do not contain or contain insignificant amounts of archeological objects. From the point of view of archeological works it means that the

loams surface can be taken as subsoil over which people embarked in their construction and economic activities related to the history of the Great Bridge.

A detailed 1808 bridge blueprint that researchers had at their disposal before the start of the archeological works had significantly contributed to finding elements of bridge support cribs on the Volkhov riverbed (Fig. 3.6). Still, various natural and historical cataclysms (floods, permanent bridge construction from the 12th to 20th century, war destructions, laying engineering utilities on the river bottom) allowed for making skeptical prognoses on the perspectives of underwater searches of bridge constructions, even if geological data pointed otherwise. Therefore, before proceeding with archeological works on the river bottom, a number of preliminary reconnaissance searches by means of various technological devices were undertaken.

A hydro-acoustic survey was carried out with the help of lateral sonar in April 2005 to identify underwater relief forms associated with the remains of the wooden bridge structures. The overall surface surveyed was four hectares. As a result of this survey the researchers have produced a hydro-acoustic picture – a sonogram of the Volkhov riverbed in the search area. A careful study of the picture of the bottom surface revealed two “structures” of technological origin that lie across it and occupy two hectares. A “structure” that lies down the riverflow (a northern one) is stretched along the axis of an existing pedestrian bridge and reaches the width of 30 meters. It is likely to contain four elements (judging by the forms of the bottom relief), the centers of which are 25-30 meters apart. An upper “structure” (a southern one) is 40-60 meters away from the axis of the lower one and is 30 meters wide. Various hills and ring structures consisting of stone and logs with their centers being 20 meters apart allowed for suggestions that these are the supports of an old bridge. Apart from these “structures”, four linear forms (modern pipelines) stretching across the bottom were identified. They have significant amounts of logs and stones by their sides, which meant that the work on laying down the pipeline managed to uncover wooden constructions.

A bathymetry done in June 2005 marked the next stage of localization. It produced a bathymetric plan of the Volkhov bottom in the search area. Comparing the hydro-acoustic picture of the bottom surface with the bathymetric plan reveals that visible rises of the bottom level on the sonogram correspond to positive relief forms identified by the survey.

Before proceeding with the description of the results of the following excavations, one should emphasize that the research on the Volkhov riverbed with the goal of finding the remains of medieval hydro-technological structures has never been done before. No one had experience of doing underwater archeological works in Velikii Novgorod. The area of underwater excavations belongs to the central part of the Volkhov riverbed and lies under a functioning navigation route. The river is approximately 200 meters wide at the excavation spot, but its width varies with the changes in the water level. During the excavation period the diving depth varied from 8 to 4 meters, the stream speed – from 1.5 to 0.5 meters per second and visibility – from 0 to 0,7 meters. Archeological works in such difficult hydrological conditions have not been done before in Russia.

The first stage of research (during the summer time, July-August 2005) was done in conditions of high water levels and fast water flow, therefore they were mainly limited to reconnaissance works: identifying bridge supports without the use of special equipment, marking wooden structures and collecting materials that were possible to lift. The breaks during this stage were used to analyze the results, to study the working conditions in different hydrological periods and to adjust research techniques. The excavations themselves were launched only in February 2006. Three trenches were “washed off” by a hydraulic gun during the winter time; their overall area is 51 sq.

meters and they are aligned along the current and the line north-north-east – south-south-west.

Already at the initial stage of works, divers examined and identified promising relief forms lying at a depth difference of 1 meter. These were tentatively called “Support № 6” and “Support № 7”³⁶, and they consisted of boulders, gravel, sand, vertically standing eroded ends of wooden piles and horizontally lying logs. After that, small conic trenches were made on the identified rises with the remains of piles (Fig. 3.7, 3.8).

Trench № 1 has a surface of 18 sq. meters. It was made at the corner of the inverted bulging L form of riverbed relief and washed-off 10 meters downstream (north-north-east direction). The trench was 1.5 meters wide at the river bottom. Before the start of the works we expected to find the bottom rows of a crib support under the layer of boulders and gravel. 1.5 meters deep, yet the excavation revealed several rows of piles of coniferous woods. Fragments of horizontally oriented logs and planks were discovered at different levels between the piles and unattached to them. An oak dowel (wooden nail) was found, which was as subsequent excavations in trenches № 2 and 3 showed, a fixing element of criss-crossing plank constructions.

As was hypothesized on the basis of preparatory research, trench № 1 revealed a north-western tip of a bridge timber crib (“Support № 6”). As it turned out to be, this has significantly contributed to the localization of the 18th century bridge, since many logs were found to be dated back to this century. Divers proceeded to other trenches.

Trench № 2 had a surface of 17 sq. meters and a width of 1.5 meters. It opened up soil layers between “Support № 6” and “Support № 7”. This trench was aimed at identifying a possible direction of the line of the bridge pier supports. A 0.5 meter deep excavation discovered a few and rarefied coniferous piles and props (i.e. blunt-nosed tree stumps, 0.5 meters high, driven into the ground and completely covered by loose bottom sediments). It also discovered three horizontally oriented fragments (unattached to piles) of plank constructions connected by joints and oak dowels.

Trench № 3 had a surface of 16 sq. meters. It extended across a western third of the structure “Support № 7”. The washing off of the trench started from the lower edge of the bulging relief form and continued 8 meters downstream. The trench was 1.5 meters wide. We expected to find piles of earlier supports under the layer of boulders and gravels. The opening up of the soil layers revealed the rows of coniferous piles. Apart from them, oak piles and three horizontally oriented fragments of plank constructions connected by joints and oak dowels (unattached to these piles) were finally discovered in a more deeply excavated northern area.

In the process of excavations three oak piles were lifted up from the river bottom:

- Pile № 63: 165 cm long (115 cm to the bent fracture), the maximum diameter is 20 cm.
- Pile № 68: 160 cm long (100 cm to the erosion zone), the maximum diameter is 16 cm.
- The third pile was found lying between piles № 59 and 68. It is 156 cm long and has a maximum diameter of 16 cm.

In this trench we also managed to cut-off a part of pile № 60 and pull out a 370 cm long pine pile (diameter – 35 cm).

In the end, we established that apart from the latter pile formations, a formation called “Support № 7” contains also oak piles, which may have been parts of medieval bridges. The difference between these piles concerned was not only the timber material used (pine as opposed to oak), but also the way the piles were sunk into the soil: oak

piles were driven 1 meter deep whereas latter day coniferous piles were driven almost 3.5 meters deep.

In order to establish the age of the discovered constructions by means of dendrochronological (tree-ring) analysis and radiocarbon (C-13) analysis, 21 specimens were cut-off from various wooden constructions found on the Volkhov riverbed during the 2005-2006 archeological works (Fig. 3.9). These cut-offs were researched at the dendrochronological laboratory of The Center for Archeological Research of the Novgorod State Museum - Historic Reserve.

A primary analysis of the cut timber parts³⁷ showed that three of them are indeed oak (*Quercus sp*), eighteen belong to coniferous woods: pine (*Pinus silvestris*) – fourteen items, spruce (*Picea abies*) – four items. The age of these items varied from 29 to 172 years. Most of them, apart from two models (№ 11 and 13), have a sufficient number of year rings for a convincing synchronization with the standard models of the Novgorod dendrochronological scales. Outer rings that allow determining the age of items in most of the cases have a satisfactory integrity.

As a result of this tree-ring analysis carried out with the use of DENDRO and CATRAS software, the age of seven pine items was established. These items belonged to two different chronological periods. A number of big piles of a later group displayed a convincing conformity with standard models of a late part of the Novgorod dendroscale (18th-20th centuries). Living trees as well as constructions from the 19th-20th centuries from Novgorod and Staraja Russa with established dates were used as standard models; other materials, in particular, the scale of south-eastern Finland, were also employed for comparison purposes. The items with established dates (piles № 3, 10, 18, 20, 35) comprise a chronologically narrow group: piles № 35 and 10 with safe outer rings are from 1782, № 20 cannot be earlier than 1781 and № 3 is not earlier than 1778. Piles № 20 and 3, as noted above, lost one to three (not more) outer rings, hence, the actual date of chopping these trees down must be one to three years later than the date of the youngest ring found in the table. Pile № 18 belongs to the same group and chronological period. Its last safe year ring was formed in 1729; however, the item does not have a part of sapwood (which, according to our estimation, amounts to 50 outer rings), this allows placing its likely date of chopping also in the 1780s. On the grounds of acquired dates, we can assign the group of piles examined on the Volkhov River bottom to the last quarter of the 18th century (although they are not earlier than 1782).

We also established the dates of two cut-off parts from a 2006 trench: they belonged to the elements of two similar plank constructions connected by the joints and long dowels (Fig. 3.10). The plank of the first construction dated back to 1286, the plank of the second construction dated back to 1354. The fact that these items date back to the Middle Ages is beyond question: the correspondence to the Novgorod standard chronology (chronological scale novpin09) is characterized by rather high coefficients: $t=5.47$ for the first construction and $t=11.8$ for the second one. Thus, apart from the 18th century structures, two medieval structures dating back to the 1280s and the 1350s are represented in this sample.

Only three small size oak piles were selected for the radiocarbon dating. Oak items – piles that were found in the lower part of the 2006 trench – displayed a substantial affinity with the growth rings of oak items from the 14th century constructions discovered in the Novgorod terrestrial excavations before, which suggested that the oak piles dated back to the Middle Ages even before the radiocarbon dating. Radiocarbon dating of the oak items in the laboratory of the Institute of Material Culture of the Academy of Sciences (St. Petersburg) established two most likely chronological intervals to which the oak piles might belong:

Interval 1: 1285-1300

Interval 2: 1365-1385

The intervals are equidistant. The combined date that is a calendar interval with a 98 percent probability is in 1270-1330. Given the discovered constructions and their established dates, for the first time one could rather confidently speak of the pile nature of the 14th century bridge structures and probably of medieval bridges in general (Fig. 3.11). The choice of pile structure is justified given both the river's hydrologic regime and the nature of the bottom sediments, and a tradition of bridge construction in Russia. In all likelihood, oak piles were driven 1 meter deep into the ground. The way piles were connected to each other was well known and widely used in bridge construction as late as in the early 20th century. To make the pile structure firmer, the piles must be joined by the oblique criss-crossing planks (plates). It was these planks with grooves and anchors meant for fixing them with different angles that were found over the oak piles. It is important to point out that the discovered 14th century oak piles were not covered by stones; instead they were covered with a loam layer and above that with a layer containing ceramics from the 16th-17th century. It follows from this that the stone filling of the timber cribs was not used in that period, because it was perhaps likely to affect the stability of the whole structure.

The discovered oak piles not only marked the location of a 14th century bridge support and point to the structure of the bridge, but it also infused hope of further successful searches for bridge structures from preceding periods. The pieces of planks joined by oak dowels, two of which have the established dates of 1286 and 1354, allow for the ability to make a cautious hypothesis that the supports of earlier periods are located a bit upstream.

The rows of coniferous piles covered with boulders and gravel date back to the last quarter of the 18th century (but not earlier than 1782) and demonstrate the evolution in bridge construction along the lines of developments in European engineering and hydro-technology (Fig. 3.12).³⁸

The Great Bridge in Republican Times

Already in the 17th century one can find rather realistic pictures of the bridge on different maps, icons and drawings of foreign travelers (Fig. 5).³⁹ They portray the wooden bridge that connects the Kremlin Prechistenskaia Tower on one side of the river to the Slavnaia street or Great Row of the market on the other side. Our findings point to the same location for the 13th-14th centuries.

But how did the bridge first appear? Let us look at the chronicles and their legal texts. The first codified definition of a bridge duty can be found in the so-called "Russian Truth" ascribed to Prince Yaroslav, which the majority of scholars consider to be the code of law of Novgorod origin. It was a compromise between the Novgorod people and Yaroslav, which resulted from a dramatic struggle for the Kiev throne in 1015-1019. In the end, the prince had to establish one and the same system of punishments for representatives of different social strata, not exempting his own retinue from these sanctions. The relevant excerpt on bridge duties ends the list of articles in "Yaroslav's Truth". It says: "These are the duties levied for bridge builders: if they build a bridge, then one *nogata* [monetary unit] must be levied for overall work done and one *nogata* for each section of a bridge; if they renovate several sections of an old bridge – 3, 4 or 5 - then the same amount must be levied".⁴⁰

The students of the "Russian Truth" tend to interpret this article as a decree regulating taxes levied to the advantage of prince servants who managed building and

renovation of the bridges (*mostniki*).⁴¹ If we accept the Novgorod origins of “Yaroslav’s Truth”, one should consider this regulation of taxes for *mostniki*” as an indirect evidence of the existence of the bridge in Novgorod already in the first quarter of the 11th century. No doubt, it could only be a bridge over Volkhov, since it is hard to imagine that building or renovation of bridge crossings over little streams and brooks in Novgorod would deserve a special princely decree.

The next time the bridge was mentioned in the chronicles was about renovations being done in the 1130s. Naturally, this was linked to the process of changes in the city’s political system and a transfer of many administrative functions from the prince to the city magistrates, while some radical historians consider 1136 a year of the revolution. In fact, already at that time boyars came to be the leading force in political transformations in Novgorod. To describe the social composition of this part of the population we shall use a felicitous definition suggested by Valentin Ianin: “Boyars in Novgorod is a stratum uniting landowners coming from the old local family aristocracy.”⁴² These boyars were stationed in different ends or boroughs of the city, which now started to compete for the nomination of the city governor, usually favoring the candidate coming from their own end. Later, factional unions could unite families from different boroughs.

For example, in the first third of the 13th century, governors representing the Slavno end of the city, that is, the part of the trading side, were elected into the city administration. This innovation first happened in 1219, and they stayed in power only for a short period, however, this happened again already in 1229.⁴³ By chance or not, the first reference to the bridge over Volkhov as “the Great” belongs to the same period. But the Slavno-based governor was already not exclusively representing the interests of his borough. As Ianin described the political events then: “The problem of military and political union in Novgorod in a complex situation of the first half of the 13th century becomes the problem of territorial rivalry of boyar groups, and the lines of political cleavages in the 1220s-1230s were drawn not by the borders of traditional communities, but by the fences of the houses in the same street”.⁴⁴

The expansion of an economic growth base of the republic after the Novgorod archbishop received the power to control land resources happened in the first half of the 14th century. This transformation could have apparently been reflected in the practice of bridge maintenance as well. And indeed, the bridge attracted the attention of chroniclers at the time. It is interesting to note that the chronicle first frequently mentions the instances of bridge renovations in the 12th century, then ignores the bridge and is silent on the issue starting from the 1230s onward, until the second third of the 14th century. But the period of the 1330s-1340s is marked by an unprecedented number of mentions of bridge destructions by floods and fires and accordingly its reconstructions and renovations:

- 1337 – “On Wednesday on the third week after Easter the water was as high in Volkhov as it has never been before and broke 10 supports of the Great Bridge”;
- 1340 – “The same year ... the Great Bridge has burnt down till water level ... The same year a new bridge over Volkhov was constructed”;
- 1345 – “The same year a strong south wind with snow arose and drove ice to Volkhov and broke seven supports on the day of Michael the Archangel during liturgy right after the governor (*posadnik*) and the whole public assembly (*veche*) crossed to the trading side”.⁴⁵

In this regard, one has to point out a certain synchronicity between the reforms of the city government and the mentions of construction and renovation works related to the Great Bridge in the chronicle. Two periods of such an increased attention to bridge

construction parallel the successes of the Novgorod people in their struggle with the princely administration in the 1120-1130s and the merging of the Sophia and trading side into a single city body in the 1330-1340s, concomitant to the increased landholding capacity of the archbishop.

In between the 12th and the 14th century waves of chronicle attention to the bridge reconstructions, we find perhaps the fullest account of the political economy of the Great Bridge during the republican period of Novgorod's history. It is contained in a special law known as "The Statute on the Bridges". Actually, it can be called a statute on the maintenance of paved surfaces, because in ancient Russian the word for bridges or pavements is the same – *most*. What is curious is that such bridged or paved spaces did not attract the attention of a chronicler in the previous period (approximately since the late 12th century). This might have meant that a bridge maintenance regime that existed at the time was so ordinary and regulated that it did not need any special care. For some reason it was not until the 1260s when the need arose for clearly assigning duties of paving the central part of the city (and the bridge over Volkhov) to the in-town, suburban and even very distant administrative-territorial units. One of the units mentioned is the Onega one, almost 500 km away from the city of Novgorod!

Lamentably, although there are a number of studies dedicated to this statute, its date and the topography of units carrying out bridge duties is still subject to different opinions. The Statute on Bridges describes the sequence and spheres of responsibility in paving streets and bridges. It concerns mostly parts of the city that had a communal or a public status: the territory of the citadel excluding the archbishop court, the Great Bridge, the market place, foreign trading stations and their disembarkation quays on the trading side. According to Ianin, the main goal of the statute was to arrange and maintain those streets that served key mercantile functions. His opinion is based on the title of the professional (or status) group mentioned in the beginning of the statute that collects taxes for bridge repairs. Now it is not *mostniki* ("bridgers"), as in the earliest "Russian Truth", it is *osmniki*, "the one-eighthers", which he interprets as collectors of trade taxes, amounting to one eighth of the revenue.⁴⁶

Others disagree. First, given the archeological and historical-topographic evidence available, D. Petrov is skeptical on whether it is possible at all to interpret the final part of the list of paved streets or squares as having any link with the trading functions. Furthermore, none of the mentioned topographic landmarks at the end of this list (e.g. the Mikhailov street, or the German wharf, and a dozen of others) can be precisely located. The 16th century descriptions of the market square and the 18th century city plans cannot be extrapolated to the topography of the *Torg* in the republican period because of multiple reconstructions that Novgorod underwent in the 16th century. For instance, in 1507 the Grand Prince of Muscovy sent his boyar Vasiliï Bobr to Novgorod who "arranged the trading rows differently from the way they stood before". We are also sure that the territory of the *Torg* underwent similar significant reconstructions in the middle and in the late 16th century.⁴⁷

The Statute mentions the Great Bridge itself, lists the territories adjoining the Great Bridge on both sides of it, and names territorial-administrative units (street communes, suburban districts, remote parishes, etc.) or administrative office-holders (the archbishop; the so-called "Sophians", usually conjectured to be the clerks and workforce of the archbishop court; the "thousandman", who was arbitrating trade disputes and administering the "hundreds"; the governor, etc.) responsible for their paving. The opinions of scholars are split on the question of who among the city magistrates was responsible for paving the Great Bridge. Ianin believes that "if one is to choose between the Sophians and the thousandman, then it is no doubt the responsibility

of the thousandman to arrange construction and renovation of the bridge over Volkhov".⁴⁸ An opposite opinion is held by V. Burov, who points out that the chronicles hardly gave any information on the role of any thousandmen in the construction and renovation of the Great Bridge. According to him, paving the bridge sections was the responsibility of the archbishop and the Sophians, "if we understand under 'the Sophians' senior 'bureaucrats' of the archbishopric (including archbishop's vice-regents), who managed the House of St. Sophia".⁴⁹

Apart from the chronicles, which ignore the bridge in the 13th century, other scarce documents from this time look as if they were developing ideas put forth in the Statute on Bridges. Ianin might be right that the statute was ultimately concerned with mercantile functions, since these documents mention riverbank quays for unloading and transporting the goods to the market place and trading stations of foreign merchants. Thus, the draft of the peace and commerce treaty between the cities of Novgorod and Luebeck and the Gotland trading mission in Novgorod (drafted by Germans) states: "Loaders in Novgorod should charge every boat 15 *kuna* for carrying goods from the quay to the German house and 10 *kuna* – to the Gotland house; and ½ *kuna* mark for every boat carrying goods out".⁵⁰ Academician Ianin dates this document back to 1268, and he suggests that its favorable conditions were a direct consequence of the victory over the Livonian branch of the Teutonic Order that the Novgorod people won in the Rakvere battle of 1268.⁵¹

Thus, one could say that during the period of Novgorod independence the Great Bridge was an indicator of social-political changes, which inevitably involved the redistribution of administrative control over communal facilities both from the perspective of organizing and of financing bridge works that were tied into a broader fabric of city life at the time. As an indicator of changes in handling communal property and concerns linked to it, it was not unique, of course. The prince, the people, the archbishop – the same sequence can be identified in the case of maintaining city fortifications. If initially, in 1044 and 1116, the chronicle reported on the construction of the "new city" by the princes, then already in 1169, 1220 and 1262 it starts mentioning *novgorodtsy* (the Novgorod people) as builders and funders of the city fortifications. After 1302 the initiative in erecting new fortifications obviously was captured by the archbishop: e.g. as the *First Chronicle* says, "Archbishop Feoktist founded a stone city Novgorod" (1302). The reason for this transfer of fortress reconstruction into the hands of the archbishop (later carried out also by such people as Vasilii Kalika) might be related to the reform of city institutions, which entailed the appearance of archbishop's vice-regents as numerous faithful lieutenants of the effective exercise of power by the office of the archbishop as the fulcrum of the Novgorod republic.

The fact that the main ecclesiastical office concerned itself with the bridge points to not only secular, but also towards the sacred meaning of the Great Bridge. It is emphasized by the "Miraculous Cross" Chapel, which was built on top of it, on the part that adjoined the Sophia side. A 2.4 meters high carved linden cross stood there as late as the 1930s. It had an inscription saying that the cross was placed there in 1548 "by the will of a servant of God Peter Nevezhin on the bridge". However, Novgorod legends linked its setting up with the building of the St. Sophia Cathedral itself in 1045-1050.⁵² In the office of the archbishop, ecclesiastical and political authority overlapped, of course. Thus, during the most famous uprising of 1418 Archbishop Simeon had to take the cross in his hands in order to stage a cross procession that put an end to the city factions fighting on the bridge, which threatened to plunge the city into a fratricidal war.

The Bridge in Muscovite Times

In 1565, traveler Rafael Barberini noted in his book, *A Journey to Moscow*: “Novgorod is a big city with a beautiful stone citadel; it is divided by a big river, called Volkhov; there is a big stone bridge with houses and shops over that river so that it looks like an ordinary street”.⁵³ The picture looks similar to what we described in the previous section of this chapter, but it is deceptive: a real watershed in Novgorod history happened in the last quarter of the 15th century, when as a result of several diplomatic and military actions, the Muscovite Grand Prince Ivan III subjected a republican city to Moscow. January 15, 1478, the day when the Novgorod people took an oath of loyalty to Ivan III, marked the beginning of the transformation of the free city into a usual provincial center of Muscovite political authority. Boyar and merchant land ownership was abolished completely by the end of the 15th century and church land ownership was reduced by 75 percent. State prisons, military manufactures and storehouses, a postal inn and ambassadorial service houses were set up in Novgorod by an order from Moscow. The citadel, rebuilt by the Italian masters invited by Ivan III, became the Kremlin, and was transferred under the jurisdiction of the Muscovite governor, while the residence for the Grand Prince was built on the trading side.⁵⁴ These changes affected the destiny of the Great Bridge also.

The documents from the 16th century registered active trade on the Great Bridge. For instance, a contract from 1591 certifies the purchase and says that “my one third of this small shop is on the Volkhov Bridge in the Apothecary (*Lekarnyi*) row on the right side if one goes from the Sophia to the trading side”.⁵⁵ Another important sign of the fact that the Great Bridge was still integrated into a city trading space is that it is regularly mentioned as a landmark for locating shops. Another contract from the same year says “my shop is in the Shpannyi row on the right hand side if one goes from St. John the Baptist Church towards the Great Bridge; it is between Fiodor’s pie shop and Maksim’s whet shop”.⁵⁶

A detailed description of the Great Bridge in the Muscovite period can be found in the shop registers of the last third of the 16th century. The list of shops and their owners provides a full picture of an active economic life that took place on the bridge and shows the most demanded goods in the bridge trade. The books mention shops, which sell items related to the keepers’ occupations: tar makers, pot makers, silversmiths, candle makers, vinegar makers, wax refiners, locksmiths, ship repairers, and *kvass* [non-alcoholic brew] producers.⁵⁷ The specialization of many shops is omitted, which is probably explained by a great variety of items they sold. At the same time the owners of these shops are given detailed characteristics, which allow for the identifying of their social status (for example, Fedka Semionov – a guard of the Clerk house; Mishuk Nos – a gardener of the princely residence, a sexton of the St John’s Church and others).

Apart from enumerating actual sales counters, the *Shop Register* of 1583 also mentions construction of special mooring places for boats along the first four piers from the citadel side on the *Detinets* end: “In front of the stone city on the bridge over Volkhov [there are] four piers of disembarkers... Vaska Timofeev Maloi and of Ivanka Omelianov Khobor and of Ivanka Nesterov, son of a butcher from Novinka, and Bogdan Ivanov, son of a ferryman, and Timofei Grigoriev, son of a cabman from Chernitsyna street, ... and the tax is 3 rubles”. Besides that, it mentions a permission to keep hay for later sale in special containers. The owners of these containers were the residents of Novgorod and its nearest suburbs. The maximum permitted amount of hay to keep was five *beremens* [a measure of volume], it was taxed with 2 rubles 5 altyn and 2 dena.⁵⁸

Boris Grekov, who studied the decay of the Novgorod republican system, stressed that in the early 17th century, when central power in Moscow was substantially weakened, Novgorod experienced the revival of “old city customs that were not yet fully forgotten. Novgorod city quickly reintroduced some of its elected offices that were almost completely abolished by Ivan III.”⁵⁹ Of course, they did not reintroduce the elections of the archbishop that existed before the Muscovite capture of the city. But some local religious initiatives started perhaps to flourish again. We find some signs of it even in the property register of the trading side for 1685-1686, which mentions an almshouse adjoining the entrance to the Great Bridge on the side of the gates to the Fishermen row, which began at the riverbank a little south of the bridge: “The distance between those gates and the almshouse was ten and a half *sazhen*’ [a measure of length] and between the almshouse to the Volkhov Bridge was another three and three fourths *sazhen*’ ...”⁶⁰

The Great Bridge According to the Findings around It

The obvious question that arises after all these detailed descriptions of the Muscovite period: did similar trade exist in the republican days? Despite the lack of written sources that would illuminate this side of history of the republican Great Bridge, certain conclusions can be made in light of the findings made during the 2005-2008 excavations.⁶¹

Underwater archeology uses two techniques of underwater excavation works. The first one is lifting soil from the riverbed with the help of a pneumatic ejector to the surface, where it can be sorted. This technique is usually used in the Mediterranean area, and it uses an air pump, which pushes compressed air to the operative nozzle of the pneumatic ejector where incoming expanding air creates rarefaction that pulls the “pulp” (loosened soil) in. Such pneumatic ejectors, however, work effectively at depths that exceed 10 meters, which was not the case for the Volkhov River. So we tried lifting the soil to the surface of the Volkhov River with the use of a hydro-ejector, in which ejection (the process of sucking-in liquids by means of kinetic energy of the other liquid or gas) is done by pressured water coming to the operative nozzle. This turned out to be ineffective as well, since the intake hose (which is significantly smaller than the one in the pneumatic ejector) constantly became clogged up with shells, ceramics, gravel and wooden chips, in which large quantities were found in the lowest cultural sediments.

The second method of underwater archeology is washing off the soil with a hydraulic gun. This involves directing a strong water flow, which is pumped from the surface into a hose-pipe manipulated by a diver standing on the river bottom to loosen the soil. The disadvantage of this technique is the difficulty of catching artifacts, which are most frequently moved together with washed-off soil. On the Volkhov riverbed this is furthermore worsened by an extremely low visibility. However, we were pressed to choose this technique because we were looking for the log remains in order to identify the remnants and the positioning of the medieval bridge. We hoped that once we had achieved this, and had located the bridge trajectory reliably, we would switch to a more careful search for the artifacts.

Despite the difficult underwater conditions and the mentioned deficiencies of excavation with the help of a hydraulic gun, we did not want to lose the opportunity for the initial collection of artifacts. This collection was carried out in rectangular zones, in full accordance with archeological methods. Field catalogues registered the positioning of found items relative to log structures and their location in the stratigraphy of bottom sediments. A diver put larger items (ceramics, glass, leather, stone, iron, etc.)

into a metal micromesh sack, which was lifted to the surface together with him (Fig. 3.13, 3.14, 3.15). Smaller individual items (coins, seals, jewelry) were placed into plastic bags. Extremely tiny items, for example, copper *pula* (small coins of the Muscovite state in the 15th-16th centuries) were lifted up by a diver one by one (Fig. 3.16). Around one hundred small items were thus lifted up from the bottom.

Hydrological and weather conditions in the winter of 2006 appeared to be the most favorable, notwithstanding the complexity of organizing the diving works in the freezing cold on the surface of the river. The water level and stream speed were lower than in the summer-fall period, whereas visibility was much higher. Immediately 13 coin items were found in trench 1, out of which three were copper *pula* from the 15th - 16th centuries while the other coins dated back to the 18th – 19th centuries. A commercial West European leaden stopper seal represented an item of particular interest (see Figure 3.17). Other findings made of precious metals were adornments: small ornamentation bells, head jewelry, rings, two of which were semi-finished, and a Christian cross. These are all rather typical findings.

What stood out among other findings was a weaponry item – a copper tip of a scabbard with a trefoil in its central part. The closest analogues of this item were found in the south-eastern Baltic region and Kaliningrad area, western Belarus and Kiev. They all date back to the 11th–12th centuries. Most of the similar scabbard tips are found in one specific burial site in Latvia.⁶² In most of the cases the tips of this shape bear plant or cross ornaments, whereas the surface of our finding is smooth and has some casting defects. Thus, the scabbard tip found on the Volkhov bottom is a simplified version of a popular shape, which might have been made by local craftsmen. It could not have been made later than the 13th century. One should point out that it is unlikely to lose such a tip while crossing the bridge: this is a relatively large item that could not have fallen through the holes in the bridge's floor. Rather, it could fall into the river from the side of the bridge with the scabbard itself (or with the owner of this scabbard). These hypotheses imply a possibility of an extraordinary situation: military conflict, execution, etc. Although, it may also have been the case that a heavy scabbard tip had slipped off from a ferryboat.

A number of items found during the bottom excavations could be classified as carpenter tools and might be thus related to the construction of bridge structures. First of all, there are ten axes (Figure 14, A). Despite their diverse sizes and shapes, one could easily identify medieval carpenter axes, which are well known from the Novgorod excavations. Their distinguishing feature is a long and somewhat lowered blade; there are five axes of this kind. One of the axes, by contrast, is a battle-axe, since it has a small blade and a round hole for inserting the handle. Four other axes, massive and sub-rectangular, belong to the period of the 16th – 17th centuries or even in the 18th–19th centuries. Apparently, carpenters often lost axes during bridge construction. Hence, this type of finding is the most numerous. Among carpenter tools in our findings, one should also single out a number of plumbs.

Other interesting findings among iron items were a conic bob with a spike (a tool for scythe repair), an iron ball (an unfinished product of 18 x 10 cm in size; these types of balls were produced by melting bog iron on the territory of the Novgorod ore field), a ploughshare, a palm of a hammered anchor, two irons for climbing piles or walking on ice, a horseshoe, etc. One could also mention of course, the smaller items – several bronze pins, fishhooks, leaden spoon bait with an iron core, a copper pan, locks and their elements.

In trench № 1, pottery findings and fragments of ceramic dishes predominate among the artifacts, which is similar to the “land” excavations. Altogether, 880 pieces

were lifted. Two pots were found intact: one of them belongs to the so-called type X, which usually reliably dates to the period of 1130-1315.⁶³

Trench № 2's findings were somewhat different. During the excavation works 35 coins, 22 of which were *pula* dating back to the 15th–16th centuries and others to the period from the 18th to early 19th centuries, were found. Other findings included half of a hanging leaden seal, a semi-finished seal and adornments made of precious metals (Christian crosses, icons, a coil medallion, hanging bells, clasps, etc). One of the more interesting findings is an ornamented plate with an image of fighting snow leopards. In addition to that, several bronze pins and fishhooks, locks and their elements are among the findings. The most numerous iron findings were nails, four axes and three knives. Similarly to trench № 1, the majority of the findings are fragments of ceramic dishes. There were 2,416 fragments including an intact jug and a low round pot which were lifted to the surface. Besides, two “Turkish” ceramic smoking pipes were found. Wooden findings were represented by an interesting knife handle, encrusted with decorative copper rivets. Also, many fragments of leather shoes and animal bones were discovered. Another item, worthy of notice, is a spindle-shaped flail with a leaden core and remains of a wooden handle. A stone part of the collection of findings consists of hones and fish weights made of flagstone with drilled holes.

In trench № 3 we found 18 coins, 16 of which are *pula* dating back to the 15th–16th centuries and only two coins belonging to 1730 and 1755. Other findings made of precious metals are adornments: crosses, hanging bells, clasps, etc. An interesting finding is a bronze ornamented semi-sphere with a hole and an image of leopards analogous to the decorated plate found in trench № 2. Several bronze pins and fishhooks, locks and their elements were again among the findings.

Altogether signs of continuous carpentry and reconstruction are obvious, mostly signs of trade before the Muscovite conquest are not as persuasive. Coins only started to appear in the Muscovite era. Unfinished metal products and other ornaments found may possibly be signs of the workshops that finished them on the bridge, yet they may have also fallen off of the transports crossing the bridge. An intact pot, which might even be of a pre-Mongolian era, may have fallen off the boat, if mooring places existed on the bridge at that time also. Thus, further research is needed.

Seals and Their Evidence

The most important finding was half of a hanging leaden seal, which belongs to the category of personal seals from the Novgorod thousandmen (the Greek equivalent is “chiliarch”; in Russian – *tysiatskii*). There are only a small number of such seals: we know of 38 of them, and they were produced with the help of 25 pairs of dies. Our Volkhov seal (Fig. 3.17, A) belongs to the first group of such seals, a distinctive feature of which is an engraving of the name (without a patronymic) of a thousandman present on one side of a seal and an image of a saint on the other. All known seals of this group (five in total) belonged to the Novgorod thousandmen from the 14th century.

A similar seal (№ 595a from the Collection of Official Seals in Ancient Rus') was found during the 1995 excavations of the Andreevskii site in Novgorod (Fig. 3.17, B).⁶⁴ This leaden seal survived intact; it has a measurement of 26-27 mm and on its front side, one can read the inscription *Pechat' Avramova Tysiachskogo* (The Seal of Thousandman Abraham). On the other side it has an image of a holy equestrian figure with a spear, and an inscription clarifies that it is St. Abraham. As Valentin Ianin and Petr Gaidukov note, this inscription is an iconographic nonsense, because Abraham is not a Christian saint. The authors also report that they “know from the sources of two

thousandmen called Abraham. One of them was a public figure from the 1320s, the other – Abraham Olferievich – is mentioned in the records for 1340, 1345, 1348 and 1350. However, there is a chance that they might have been one and the same person”.⁶⁵

Thus, the seal from the Volkhov riverbed also belonged to thousandman Abraham and is the second seal of the same kind.⁶⁶ The comparison of imprints (the letters’ contours in the first place) on both seals shows that they were made with different dies. But the character of fracture is quite usual for hanging leaden seals; in most cases they were broken along the line of the channel containing a cord that bound a sealed document.

Finding the seal of thousandman Abraham was a success of the archeologists, which affected the overall assessment of the underwater research results. First, a discovery next to the bridge, the logs of which were dendrochronologically dated to the 13th – 14th centuries, of the seal belonging to a magistrate who held office in the 1320s or the 1340s, is a convincing additional confirmation of the established date.

Second, the discovery of such a seal is one of the rare opportunities to shed light on the political implications of our research. One should point out that in the absence of extant public archives, and thus of direct access to first-hand information on the evolution of Novgorod political and administrative institutions in the written sources, sphragistic evidence long ago became a key resource for the reconstruction of the history of magistrate offices. In particular, it was the statistical analysis of sphragistic findings in Novgorod, which allowed Valentin Ianin to come to a conclusion that in the second quarter of the 14th century the archbishop was finally delegated control over the “black”, that is, communal land reserves. This change was reflected in a significant increase in the number of seals belonging to the archbishop vice-regents, with which they sealed documents certifying contracts over land issues (purchase, division, exchange, mortgage, etc).⁶⁷

We should stress that historians still do not have a full picture of the scope of authority belonging to a thousandman, whose office is mentioned in the chronicles from the end of the 12th century. Ianin notes: “Sources describe him as a representative of merchants and other categories of men, that is, of all unprivileged strata of Novgorod population”.⁶⁸ We know, of course, that subject to the thousandmen were the hundredmen. The duties and evolution of this important office are unclear as well, but an analysis of 250 extant seals belonging to the city magistrates called in Russian *tiun* - which appear in the chronicles under the titles of either “Novgorod *tiuns*” or “grand prince *tiuns*” - established that the title of a “Novgorod *tiun*” referred to the office of a hundredman.⁶⁹ Sphragistic evidence is decisive in this case as well.

It was in the 14th century, the period in which our seal was produced, when a drastic shift in the social background of the thousandmen occurred. As opposed to the 13th century, when they were elected from among the “hundreds” people (i.e. an unprivileged city population belonging to the units called the “hundreds”), in the 14th century we find the thousandmen already elected from among the Novgorod boyars. This meant a growing prestige of a thousandman office and a gradual increase of proximity between the city “hundreds” and the boyar clans. According to Ianin, the boyars’ efforts in church building played an important role in spreading their base of support to include the “hundreds”, because the parishes of newly erected churches included both people from traditional boyar households and the residents from the city “hundreds”.⁷⁰

The Great Bridge could have been a similar object of common engagement and concern for the boyars and the “hundreds” people, although at the city level. The Statute on the Bridges informs us that a thousandman was responsible for paving one of the

sectors in the central part of Novgorod. We have already mentioned the view of Valentin Ianin: a thousandman funded the repairs of the bridge and perhaps even supervised the reconstruction. Researchers who opposed this view, agreed then that the sector of a thousandman's responsibility comprised spreading the street pavement from the Great Bridge to St. John the Baptist Church, a center of the largest trading corporation of Novgorod, the wax merchants, and also the site of a trade court. A draft treaty on commerce and justice between Novgorod, the capital of the Hanseatic League Luebeck and the Gotland trading mission in Novgorod, written in 1269, plainly states: "If the above-mentioned pilots [Novgorod guides who were hired to lead the German ships from Lake Ladoga to Novgorod – S.T.] would argue with the merchants on their way either up or downstream and settle the difference on the way, then the issue would be solved. If they fail to settle the difference, they would have to go to court held by a thousandman and the Novgorod people at the St. John's yard... And if a quarrel arises between the Germans and Novgorod people, then it would have to be settled in the yard of St. John in front of the governor (*posadnik*), thousandman and merchants".⁷¹

Thus, the place where our Abraham seal was found appears to be in the immediate surrounding of a thousandman zone of jurisdiction. We could imagine a hypothetical situation where a document sealed with this thousandman seal was opened by a recipient right on the Great Bridge. The seal broken in two could have very well slipped off from a cord and fell through the bridge floor plates to the river. Or it could have been brought to the bridge from the church of St. John, which is only about three hundred meters away from the center of the river, or from any building on the way between the church and the bridge.

The seal attributed to a specific person adds a nuance to the historical and archeological context of our findings in the Great Bridge area. No matter whether one or two thousandmen named Abraham worked in Novgorod between the 1320s and 1340s, all of this period is famous for the same feature: it was marked by intensive city building. As we have already mentioned, the radical changes began with the grandiose reconstruction of the citadel fortifications by the Archbishop Vasilii Kalika (1331-1350). This reconstruction became a first step in redesigning the whole central part of the St. Sophia side. The chronicle informed on the construction of a new bridge in 1336, which seems to fit the logic of the construction sequence (Fig. 3.18).⁷²

Undoubtedly, one of those who assisted the archbishop in his efforts at reconstructing the city and rearranging its layout could have been the Novgorod thousandman Abraham. At least, their names appear together in many important missions. In the moment of exacerbated tensions between Novgorod and Prince Semion Ivanovich in 1341, an embassy to Moscow was sent by the Novgorod people. This embassy was led by Archbishop Vasilii and thousandman Abraham.⁷³ The authority of thousandman Abraham becomes even more evident from his participation in another embassy, as he was sent to the Swedish King Magnus who invited the Novgorod people to take part in a religious dispute in 1347. Magnus captured Abraham and another 11 "good men" and sent them to Sweden, where they had to wait until being exchanged for "Swedish aliens".⁷⁴

The second seal we found as a commercial stopper seal was also made out of lead. It has an image of sheep clippers and a little cross in the lower half. This item belongs to commercial seals that were put on sacks or parcels of woolen fabric imported to Novgorod from the Western European cities. The design of such lead seals closing the parcels with woolen fabric (compare *tuchplomben* in German and "lead cloth-seals" in medieval England) is principally different from the Novgorod hanging leaden seals. Two round halves of the seal were connected with a thin lace prior to its use; at the

moment of sealing, one had to curve the lace in the middle and put one half with a hole in its center on top of the other, which had a corresponding plug. The surfaces of such seals, closed with the use of dies, usually had diverse images (Latin inscriptions, letters and the fragments of words, crosses, heraldic birds and animals, etc.); when the seal was broken its halves became archeological objects that are preserved either separately or were connected with a straightened lace.⁷⁵

In our case, a surviving half was a round plug, with the traces of lace being destroyed by water flow and hardly visible. After looking through the books, we managed to find only one item similar in its image. This commercial seal also depicts sheep clippers and originated from the excavations in Brugge, where, as in the case of London and Novgorod, a large Hanseatic trading station was located.⁷⁶ Despite the rather significant number of commercial seals found in the cities of Northern Europe, including Novgorod, their classification has not yet been elaborated. Researchers suggest almost all northern European countries as the possible places of origin of these seals, which predominantly came from Germany, then Netherlands, Belgium, Flanders and England.⁷⁷ The 14th–15th centuries were a period when commercial leaden seals were used Europe-wide, including Novgorod.⁷⁸ We know from commerce treaties between Novgorod and Hanseatic towns that the unloading of West European goods from the ships that brought them to Novgorod took place not far away from the Great Bridge. Thus, we can predict a future increase in the number of such seals found in the Volkhov.

Analysis of a Numismatic Collection

There are 68 Russian coins dating back to the 15th-19th centuries that were found during underwater excavations. From trench № 1 came 11 coins, 30 – from trench № 2, 13 – from trench № 3, while the places where the other 14 coins came from were not documented precisely. A coin collection of this scale is extraordinary large as compared to other Novgorod excavation sites. The other comparable large numismatic collection was discovered during the excavations in the Slavno borough in 1932-1936. The explanation usually given for that was that it might have been a cemetery place.⁷⁹ The usual number of coins found during archeological excavations in Novgorod is no more than five to ten (if one excludes hoards of coins from these calculations). As a rule the upper layers of soil, where rotting happens easily, are mechanically removed during excavations, all the way to the level of the mid-15th century, thereby depriving archeologists of a chance to collect numismatic materials. Therefore, the main source yielding Novgorod coins until now was the material coming predominantly from the Volkhov banks.

Underwater excavations produced a standard variety of coins, although one should point out that the majority of coins are well preserved. At the same time the composition of the collection, proportions of different types of coins and the topography of their location under the bridge deserves particular attention.

The collection is chronologically divided into two groups: the end of the 15th–16th centuries (41 coins) and the 18th–early 19th centuries (27 coins). The first group was comprised of copper *pula* produced in different minting centers: Novgorod the Great (20 coins, 52,6 percent), Tver (9 coins, 23,7 percent), Pskov (6 coins, 15,8 percent) and Moscow (3 coins, 7,9 percent). In addition, there are three poorly preserved coins (not included in the percentage distribution) with unidentified minting. One could compare this percentage breakdown of coins to the usual composition of *pula* found in other parts of Novgorod in the 1960-1980s.⁸⁰ The analysis of 3,002 copper coins found

showed that 48 percent of them were minted in Novgorod, 41 percent in Tver, 5 percent in Pskov and 6 percent in Moscow. One should note that the number of *pula* found on the Volkhov riverbed is small. Thus, the proportions are quite likely to change if the number increases. However, already at this point it is evident that the coins from Novgorod and Tver predominate over the rest in this time period.

The coins from the second group belonged to the period of 1701-1814. Thus, the chronological gap between the two groups of coins requires an explanation. Also, despite the late origin of the coins from the second group, the study of their composition adds a number of important details to the study of the process of archeologization of artifacts on the Volkhov river bottom. Only 1 out of 27 coins is silver (a 10 kopek coin dating back to 1784), while the rest are copper. The distribution according to the value is the following: 2 mits, 8 dengas, 1 kopek, 7 two-kopeks and 8 five-kopeks coins.

What strikes us in the composition of this group is the exact match of the minting dates of the earliest coins (1701-1704) with the completion of the construction of the new partly stone bridge over Volkhov, the date of which we know from the sources - the 1690s. According to the documents from the Russian State Archive of Ancient Acts (RGADA), the new bridge had a stone section, which started from the Kremlin Prechistin Tower and spread to the Volkhov. This section had merchant shops on its sides, and was constructed in 1697-1699. However, the remaining part of the bridge, including its very end on the trading side, remained wooden.⁸¹ Hence, the fact that a whole mass of found coins coincides in time with the reconstruction of the bridge can mean one of two things. Either an active trade was resumed on the bridge after a long break or a new bridge was constructed along the line that was far removed from the old bridge.

In this respect, one should stress an absence of silver coins from the 15th-17th centuries on the Volkhov river bottom, which are frequently found together with copper *pula* from the 15th-16th centuries in other parts of the city. One of the possible explanations of this fact lies on the statistics of *pula* distribution in the 2005-2006 trenches. As the topography of these light coins (0.13 – 0.79 grams) shows, their number increases upstream. But due to their light weight, *pula* traveled a long distance downstream before falling to the bottom. That's why we do not find heavy coins from the 17th century lying next to them, as we would expect elsewhere. The zone of the sedimentation of *pula* might be situated at a distance ranging from several meters to dozens of meters downstream from the bridge, from which they had been dropped. It means that the discovered *pula* are quite significantly far away from the place where they fell into the river. This, together with the above observations on heavier coins and sphragistic findings, makes us suggest that bridge of the 15th-17th centuries could have been upstream from the zone of the 2005-2006 excavations. This hypothesis is also confirmed by the chronicles, which occasionally mention that the replacement of the bridge supports was done “on the side of the old” or “in the upper direction from the previous” bridge. Further underwater excavations will help clarify the problem of possible shifts in the location of the Great Bridge over Volkhov.

In conclusion, one should state the following. The composition of the two groups of found coins shows that people mainly lost small value coins on the Volkhov Bridge. This could happen probably because the bridge was the place of small-scale retail both in the 15th-16th centuries and in the 18th century. One could be reminded, in this regard, of Rafael Barberini's observations cited in the beginning of the section on the Muscovite period. Whereas the impressions of this Italian traveler about the “stone” bridge over the Volkhov might appear untrustworthy, because we do not have other evidence pointing to the same conclusion, mentions of an active trade and the presence

of shops on the bridge are confirmed by the Russian sources of the time. Still, further research is needed to establish whether trade was practiced at all on the bridge in the time of the flourishing Republic of Novgorod.

Signs of Republican Thought?

The finding of the seal of the thousandman Abraham once again pointed us to the historical figure of Archbishop Vasillii Kalika. Let us take a look closer at his activities, when they dealt not with the city infrastructure, but rather with the superstructure, if one is allowed to play with the tired Marxist categories.

Building and beautifying the environment along the line of “the Great Bridge – the Entrance to Jerusalem Church - the archbishop court”, Kalika installed gilt-copper doors on the portal of the St. Sophia Cathedral, which faces the bridge. With time these doors became called the Vasilievskii Gate, honoring the archbishop himself and for obvious reasons. The ornamented doors depict many characters engaged in allegorical scenes, and one could take these subjects to be the representation of the thinking of the archbishop himself. Among the Novgorod archbishops he is known as a rare figure who left an influential epistle on the difference between the earthly and intelligible paradise, almost a theological treatise in its own right.⁸² It is during the times of his tenure that Novgorod witnessed the appearance of the first heretical movement in Russian history.⁸³

Among the relatively traditional scenes from the New and Old Testaments on the right side of the Vasilievskii Gate, one finds a non-traditional representation. An inscription over the scene tells the viewer: it is “A Centaur, Throwing Czar Solomon to the End of the World.” The meaning of the scene was clear to the contemporary viewer: following a widespread apocryphal legend that circulated in Russia since the 12th century, Solomon called on the centaur to help him build the palace, but when he started doubting the might of the centaur, the latter threw him to the end of the known world, and only the wise men of the czar managed to eventually find him and return him back.⁸⁴ The subject plot was thus monarchomachy, while the main protagonist is one of the palace-builders, a professional crushing the princely authority. This might have seemed to be a very appropriate narrative in the context of the heightened conflicts between Novgorod and the Pskov or the Muscovite princes at the time.

Such centaur-like figures are possibly to find in other everyday contexts of Novgorod life. Among the widely-known images are those we find on the carved columns of the non-preserved wooden church from the 11th century, which were discovered in the 1950s; fragments of ancient lustres of the St. Sophia Cathedral, and even carved wooden figures that served as ornamentation for the Novgorodians. Art historians explored the links of these images to the ancient mythical prototypes.⁸⁵ What is more important, perhaps, is that ancient philosophy and mythology was looked upon by the mainstream Christianity in Russia as dangerously close to and perhaps one step away from heresy, and thus using it became a source of unacceptable free-thinking or unnecessary erudition that did not help in the enlightenment of the soul with divine light. Some centuries later, centaurs were discovered hidden in ornamental symbols of ritual pottery, perhaps used in Moscow by the first officially condemned and burnt group of heretics, the Judaizers, also of Novgorod origin.⁸⁶ Resisting autocracy and free thinking might have been going hand in hand since the middle of the 14th century, but more research on the intellectual heritage of Vasillii Kalika is needed.

Conclusion

Having emerged in the extremely unfavorable conditions of the over-dampened Ilmen' plain and being divided by a rapid and nonfreezing river, Novgorod would not have managed to evolve into a strong political organism, unless its residents would have not started from the very beginning to care about the arrangement of the city's infrastructure. Already in the mid-10th century, the regular paving of wooden streets was introduced in the city and in the 14th century stone fortifications become the center of concern. In the end the city builds around its territory a robust defense, including a rampart and a moat. All these undertakings and constructions themselves (streets, walls and ramparts) framed a daily background of republican life, and provoked private and political conflicts that stimulated local self-government.

The Great Bridge undoubtedly occupied the central place in the social topography of Novgorod. Even a chronicler's sketch of its history provides enough clues for interpreting this complex artifact as a political arena, where a dramatic history of the republican city is unfolding.⁸⁷ Due to the results of the first archeological investigations of the bridge remains carried out in 2005-2008, one can now positively speak of an availability of bridge structures for a large-scale study, including dating techniques used by hard sciences. The collection of individual findings (over 450 items) and materials found *en masse* (ceramics, bone remains, etc.) during the underwater excavations present rich data for a thorough and detailed reconstruction of the life on (or with) the bridge. Thus, the analysis of discovered magistrate and commercial seals allows for making a snapshot of a certain period and of the functions performed by city magistrates on bridge renovation and maintenance. More research is needed, however, to make illuminating comparisons with the rich story of republican life on and with the Rialto Bridge in Venice.

However, research has just started. We need more excavations to not only correlate chronologically seals and extensive numismatic materials with dated bridge timber structures, but also to definitively establish the location of the bridge at the time of the flourishing of republican Novgorod. This localization, together with additional future findings, will allow us to finally draw a persuasive and illuminating comparative case with the Italian examples of handling and maintaining *res publicae*, such as the bridges.

¹ A. A. Zalizniak, *Drevnenovgorodskii dialekt* [Ancient Novgorod Dialect] (Moscow, 1995).

² L. Ilyina and A. Grakhov, *Volkhov* (Leningrad, 1980), 15-18.

³ Ilyina and Grakhov, *Volkhov*, 33. In 1922 the hydro-electric power station was built on the Volkhov, which controls now water direction and overflow.

⁴ L.A. Dmitriev, ed., *Literatura Drevnei Rusi. Khrestomatiia* [Literature of Ancient Rus'. Selections for Study] (Moscow, 1990), 229-30.

⁵ *Novgorodskaiia pervaya letopis'* [The First Novgorod Chronicle] (Moscow, 2000), 35. Hereafter this key source on Novgorod history will be conventionally cited as NPL.

⁶ NPL, 348-49, 399, 413, 419.

⁷ NPL, 27.

⁸ NPL, 39.

⁹ V. L. Ianin, *Srednevekovyi Novgorod* [Medieval Novgorod]. Moscow, 2004. p. 129.

¹⁰ M. Kh. Aleshkovskii, "Arkhitektura i gradostroitelstvo Novgoroda i Pskova kak istochnik izucheniia ikh sostialnoi istorii" [Architecture and City Building of Novgorod and Pskov as Sources for Studying Their Social History], in *Restavratsiia i issledovaniia pamiatnikov kultury* [Restoration of and Research on Cultural Monuments], issue 1 (Moscow, 1975).

¹¹ NPL, 67.

¹² M. Petrov and S. Troianovsky, "Man and The Fortress: Ways For Co-Existence In Medieval Russia," in *Castella Maris Baltici* (Rudkobing, 2001), vol. 5: 137-42.

¹³ E.A. Rybina, *Torgovlia srednevekovogo Novgoroda* [The Trade of Medieval Novgorod] (Velikii Novgorod, 2001), 290-92.

¹⁴ See e.g. A. N. Sorokin, “K topografii drevneishego Torga” [On the Topography of the Ancient Marketplace], in *Novgorod i Novgorodskaiia zemlia: istoriia i arkheologiiia* [Novgorod and Novgorod Land: History and Archeology], issue 2 (Novgorod, 1989), 45-48; V. N. Gusakov, “K topografii severnoi chasti drevnego novgorodskogo Torga” [On the Topography of the Northern Part of the Ancient Novgorod Marketplace], in *Novgorod i Novgorodskaiia zemlia: istoriia i arkheologiiia* 48-53; V.A. Varentsov and G. M. Kovalenko, *V sostave Moskovskogo gosudarstva* [Part of the Muscovite State] (St. Petersburg, 1999), 61-62.

¹⁵ L. I. Petrova, “Ioanna Predtechi na Petriatinom dvore, a nyne zovetsia na Opokah: o sviazi mikrotoponimii Novgoroda s drevnim reliefom” [The Church of John the Baptist at Peter’s Court: on the relation of Novgorod micro-toponymics and ancient relief], in *Velikii Novgorod v istorii srednevekovoi Evropy* [Novgorod the Great in the History of Medieval Europe] (Moscow, 1999), 187-93.

¹⁶ Petrov and Troianovsky, *Man and The Fortress*, 139.

¹⁷ M. G. Rabinovitch, “Dereviannye sooruzheniia gorodskogo khoziaistva v Drevnei Rusi” [Wooden Constructions of the City Economy in Ancient Rus’], in *Srednevekovaya Rus’* [Medieval Rus’] (Moscow, 1976), 32.

¹⁸ S. V. Troianovsky. *Novgorodskii detinets v X-XV vv. po arkheologicheskim dannym. Avtoreferat* [The Novgorod Citadel in the X-XV Centuries According to the Archeological Data. A Candidate of Science Thesis Synopsis] (Moscow, 2001), 16-17. Out of rare analogies to the Novgorod bridge one can mention the remains of a log *gorodnia* that dates back to the XVI century and was also found in Moscow. Having a triangular shape, this crib support had the head that faced the current of Neglinnaia river. The log construction was fixed with piles, driven vertically into the soil. As I point out, the structure found on a bank was unlikely to be used in deep river sections (*Novgorodskii detinets v X-XV vv. po arkheologicheskim dannym. Avtoreferat*, 32-33)

¹⁹ L. I. Ivanova-Veen, *Dereviannye mosty russkogo severa XVIII-XX vv. Diss. kand. Arkh.* [Wooden Bridges of the Russian North in XVIII-XX Centuries. A Dissertation for the Candidate of Architecture] Moscow, MARKhI. 1988, typescript.

²⁰ L. I. Ivanova-Veen and O. V. Kharkhordin, “Novgorod kak res publica: most k velichiiu” [Novgorod as Res Publica: A Bridge to Grandeur], in *Neprikosnovennyi zapas* 4(30), (2003): 203.

²¹ E. O. Paton, P. V. Rabtsevitch and K. K. Siminskii, *Dereviannye mosty* [Wooden Bridges] (Kiev, 1915), 5.

²² L. A. Dmitriev, ed., *Literatura Drevnei Rusi. Khrestomatiia*, 229.

²³ *Pskovskie letopisi* [Pskov Chronicles], issue 1 (Moscow, Leningrad, 1941), 111.

²⁴ Existing archeological reconstructions of the street networks and medieval Novgorod колокол layout do not contradict this hypothesis. On the St. Sophia side both Prusskaia and Chudintseva streets could enter the Great bridge with equal probability. Localization of another medieval crib support will confirm or refute this hypothesis about the existence of a “straight” bridge in the XII - XIII centuries.

²⁵ V. L. Ianin, *Novgorodskie posadniki* [Novgorod Governors].(Moscow, 2003), 263.

²⁶ NPL, 356.

²⁷ The Muscovite term for the citadel applies to a fortress one witnesses even nowadays. It was built by the grand prince of Moscow Ivan III, who captured Novgorod in 1471. The Novgorod Kremlin was built in 1482, 4 years after the republic was wholly annexed to Muscovy, on the site of the ancient citadel, *Detinets*.

²⁸ NPL, 343.

²⁹ NPL, 345.

³⁰ A. L. Mongait, “Oboronitelnye sooruzheniia Novgoroda Velikogo” [Defense Edifices of Novgorod the Great], in *Materialy i issledovaniia po arkheologii SSSR* [Materials and Studies on the Archeology of USSR], issue 31 (Moscow, 1952).

³¹ NPL, 347.

³² Mark Aleshkovskii found the remains of the old church apse, see *Otchet ob arkheologicheskikh raskopkakh i nabludenii za zemlianyimi rabotami na territorii Novgorodskogo kremlia v 1957 g.* [Report on the Archeological Excavations and Observation of Earth Works in the Territory of the Novgorod Kremlin in 1957], in *Arkhiv IA RAN* [Archive of the Institute of Archeology of the Russian Academy of Sciences], R-1. № 1672., 10.

³³ NPL, 425.

³⁴ S. V. Troianovskii, “Arkheologicheskie svдетельstva stroitelnoi aktivnosti arkhiepiskopa Vasiliia Kaliki v Novgorodskom detintse” [Archeological Evidence of Construction Activities of Basil the Cripple in the Novgorod Citadel], in *Novgorod i Novgorodskaiia zemlia: istoriia I arkheologiiia* [Novgorod and Novgorod Land: History and Archeology], issue 18 (Velikii Novgorod, 2004), 346-55.

³⁵ Collection and analysis of archival data on engineering and geological research of the Volkhov river, and production of a lithologic profile of the riverbed was done by hydro-geologist Natalia Firsova.

³⁶ Numbering of the bridge crib supports correspond to the ordering in the 1808 bridge reconstruction blueprint, starting from the Sofia side.

³⁷ Dendrochronological analysis was carried out by an employee of the Novgorod Center of Archeological research Olga Tarabardina.

³⁸ See for example Diderot and d'Alembert. *L'encyclopédie. Art de la Charpente* (Paris: Inter-Livres, 2001), XIX-XX.

³⁹ The most complete review of cartographic and iconographic documents, and also of the images of Novgorod in the pictures and engravings of XVII-XVIII can be found in V. L. Ianin, *Plany Novgoroda Velikogo XVII-XVIII vekov* [Plans of Novgorod the Great in XVIII-XIX Centuries] (Moscow, 1999).

⁴⁰ *Pamiatniki russkogo prava* [Monuments of Russian Law], Part I. (Moscow, 1952), 80, 85.

⁴¹ *Pamiatniki russkogo prava* [Monuments of Russian Law], 106.

⁴² V. L. Ianin, "Problemy sotsialnoi organizatsii Novgorodskoi respubliki" [Problems of the Social Organization of the Novgorod Republic], in *Rossia i Italia* [Russia and Italy], Moscow, 1972, 76.

⁴³ V. L. Ianin, *Novgorodskie akty XII-XV vv.* [Novgorod Acts of the XII-XV Centuries] (Moscow, 1991), 14.

⁴⁴ V. L. Ianin, *Novgorodskie posadniki* [Novgorod Governors] (Moscow, 2003), 200.

⁴⁵ NPL, 348-58.

⁴⁶ V. L. Ianin, *Oчерки комплексного istochnikovedeniia* [Sketches of a Unified Study of Different Sources] (Moscow, 1977), 108.

⁴⁷ D. A. Petrov, *Problemy istoricheskoi topographii Novgoroda* [Problems of the Historical Topography of Novgorod] (Moscow, 1999), 37-38; see also his "Meropriiatiia moskovskogo pravitelstva po rekonstruktsii Novgoroda v 1478-1611 gg." [Moscow Government Attempts to Reconstruct Novgorod in 1478-1611], in *Novgorodskie drevnosti* [Novgorod Antiquities] issue 4. (Moscow, 1993), 227-28, 233.

⁴⁸ Ianin, *Oчерки комплексного istochnikovedeniia*, 105.

⁴⁹ V. A. Burov, *Oчерки istorii i arkheologii srednevekovogo Novgoroda* [Essays on History and Archeology of Medieval Novgorod] (Moscow, 1994), 88.

⁵⁰ *Gramoty Velikogo Novgoroda i Pskova* [Treaties of Novgorod the Great and Pskov] (Moscow-Leningrad, 1949), 60.

⁵¹ V. L. Ianin, *Novgorodskie akty XII-XV vv.* [Novgorod Acts of the XII-XV Centuries] (Moscow, 1991), 84.

⁵² M.V. Muraviov, *Novgorod Velikii* [Novgorod the Great] (Leningrad, 1927), 30-31.

⁵³ *Skazaniia inostrantsev o Rossii v XVI i XVII vekakh* [Foreigner Accounts of Russia in XVI and XVII Centuries] (St. Petersburg, 1843), 47.

⁵⁴ D. A. Petrov "Meropriiatiia moskovskogo pravitelstva po rekonstruktsii Novgoroda v 1478-1611 gg." [Moscow Government Attempts to Reconstruct Novgorod in 1478-1611], in *Novgorodskie drevnosti* [Novgorod Antiquities], issue 4 (Moscow, 1993), 234.

⁵⁵ *Velikii Novgorod vo vtoroi polovine XVI v.* [Novgorod the Great in the Second Half of the XVI Century] (St. Petersburg, 2001), 183.

⁵⁶ *Velikii Novgorod vo vtoroi polovine XVI v.* [Novgorod the Great in the Second Half of the XVI Century], 191.

⁵⁷ *Lavochnye knigi Novgoroda Velikogo 1583 g.* [The Shop Register of Novgorod the Great for 1583], (Moscow, 1930), 9-10, 129-31.

⁵⁸ *Lavochnye knigi Novgoroda Velikogo 1583 g.* [The Shop Register of Novgorod the Great for 1583], 130.

⁵⁹ B.D. Grekov, "Oчерки po istorii khoziaistva novgorodskogo Sofiiskogo doma XVI-XVII vv." [Sketches of the History of the Economy of the House of St. Sophia in the XVI-XVII Centuries], in *Letopis' zaniatii arkheograficheskoi komissii* [A Chronicle of the Acts of the Archeographic Commission], issue 22 (Leningrad, 1926).

⁶⁰ *Pistovye i perepisnye knigi Novgoroda Velikogo XVII – nachala XVIII vv.* [Property Registers and Population Censes of Novgorod the Great in XVII- Early XVIII Centuries] (St. Petersburg, 2003), 176.

⁶¹ Before proceeding with the description of these findings we should stress the peculiarities of the archeologization of medieval artifacts on the Volkhov riverbed. Divers very soon learned that a distribution of items in bottom sediments was not random; rather, it followed certain rules. Establishing

all these regularities and giving their exhaustive description are the tasks for the future, but one can already point out some of them with certainty even now. Natural archeologization followed the particularities of river flow and subsequent natural redistribution within the limits of bridge zone. Dispersion zone limits vary for different categories of items, they depend on their specific weight and density. Of course, we cannot dismiss the possibility of secondary archeologization, however, there was only a marginal number of such items present.

⁶² A.N. Kirpichnikov, “Mechi iz raskopok drevnego Iziaslavlia” [Swords from the Digs of Ancient Iziaslavl’], *Kratkie soobscheniia Instituta arkheologii* [Short Reports of the Institute of Archeology] 144, (Moscow, 1975): 30-33.

⁶³ A typological classification of the found ceramic fragments was graciously supplied to us by P. D. Malygin, a specialist on medieval pottery from Novgorod and Torzhok.

⁶⁴ V. L. Ianin and P. G. Gaidukov, *Aktovye pečati Drevnei Rusi X-XV vv.* [Seals of Official Documents of Ancient Rus’ of the X- XV Centuries] (Moscow, 1998), 90, 195.

⁶⁵ Ianin and Gaidukov, *Aktovye pečati Drevnei Rusi X-XV vv.* [Seals of Official Documents of Ancient Rus’ of the X- XV Centuries], 90, 195.

⁶⁶ I am very grateful to a member of the Russian academy of sciences Valentin Ianin for the initial attribution of the seal.

⁶⁷ V.L. Ianin and P. G. Gaidukov, *Aktovye pečati Drevnei Rusi X-XV vv.* [Seals of Official Documents of Ancient Rus’ of the X- XV Centuries], 9.

⁶⁸ V. L. Ianin, *Srednekovyi Novgorod* [Medieval Novgorod] (Moscow, 2004), 29.

⁶⁹ Ianin, *Srednekovyi Novgorod* [Medieval Novgorod], 29.

⁷⁰ Ianin, *Srednekovyi Novgorod* [Medieval Novgorod], 29

⁷¹ *Gramoty Velikogo Novgoroda i Pskova.* [Treaties of Novgorod the Great and Pskov] (Moscow-Leningrad, 1949), 59-60.

⁷² NPL, 347.

⁷³ *Sophiiskaya pervaiia letopis’* [The First Sophiiskaia Chronicle] (Moscow, 2000), 414.

⁷⁴ *Sophiiskaya pervaiia letopis’* [The First Sophiiskaia Chronicle] 421, 429.

⁷⁵ *Opgravingen in Amsterdam. 20 Jaar Stadskernonderzoek* (1977), 123-24. G. Egan, *Lead Cloth Seals and Related Items in the British Museum* (London, 1995).

⁷⁶ Hubert de Witte, “Archaeological Indications for Trade in Brugge from the 12th to the 17th Centuries,” in *Lubecker Kolloquium zur Stadtarchaologie im Hansearum II: Der Handel.* Lubeck, 1999, 172.

⁷⁷ V. B. Klovov and V. P. Lebedev, “Zapadnoevropeiskie torgovye plomby iz razvalin Saraia” [West European Commercial Seals], in *Vosmaia Vserossiiskaia numizmaticheskaia konferentsiia* [The Eighth Numismatic Conference] (Moscow, 2000), 275-77.

⁷⁸ E.A. Rybina, *Torgovlia srednekovogo Novgoroda* [The Trade of Medieval Novgorod] (Velikii Novgorod, 2001), 254-56.

⁷⁹ P. G. Gaidukov, “Nakhodki edinichnykh monet XIV – nachala XVIII v. na territorii Novgoroda” [Findings of Single Coins of the XIV - early XVIII Centuries on the Novgorod Territory], in *Novgorodskii istoricheskii sbornik* [Novgorod Historical Almanac], issue 2(12) (Leningrad, 1984), 143-56.

⁸⁰ Gaidukov, “Nakhodki edinichnykh monet XIV – nachala XVIII v. na territorii Novgoroda” [Findings of Single Coins of the XIV - early XVIII Centuries on the Novgorod Territory], 143-56.

⁸¹ L. A. Sekretar’, “Volkhovskii most: vek XVII” [The Volkhov Bridge: XVII Century], in *Cheloa* no. 1 (Novgorod, 2000): 98.

⁸² See a chapter on Kalika's theology of the paradise in *Etiudy o russkoi istorii* [Sketches of Russian History], ed. B. A. Uspenskii (St. Petersburg: Azbuka, 2002).

⁸³ See e.g. B. A. Rybakov, *Strigolniki. Russkie gumanisty XIV stoletiiia* [The Strigolniki: Russian Humanists of the Fourteenth Century] (Moscow: Nauka, 1993).

⁸⁴ *Apokrifii Drevnei Rusi* [Apocryphal Legends of Ancient Rus’] (St. Petersburg, 2006), 51-52.

⁸⁵ A. V. Chernetsov, “K izuchenii simvoliki Novgorodskikh vrat 1336 g.” [Studying the Symbolism of the Novgorod Gates from 1336], in *Kratkie soobscheniia instituta arkheologii* [Short Reports of the Institute of Archeology], issue 144 (Moscow, 1975), 43-46.

⁸⁶ See this conjecture developed in A. V. Chernetsov, “Ob izobrazheniakh kentavra, obnazhaiushchego mech” [On Representations of a Centaur that Bares a Sword], in *Kratkie soobscheniia instituta arkheologii* [Short Reports of the Institute of Archeology], issue 160, (Moscow, 1980), 61-62.

⁸⁷ Oleg Kharkhordin, “Things as *Res Publicae*: Making Things Public,” in Bruno Latour and Peter Weibel, eds., *Making Things Public: Atmospheres of Democracy* (Cambridge, MA: MIT Press, 2005).

