

What is known as the “dark sector” of the universe, making up as much as 96 percent of its extension, is in the limelight of astronomers’ and physicists’ attention. It is composed of two fractions—“dark matter” (23 percent) and “dark energy”. “Dark matter” is present in galaxies and their clusters—it does not radiate and does not absorb anything, but is capable of densification and gravitational twisting. As to “dark energy”, it is evenly distributed in space and generates a field: what we know is that this field has a negative pressure responsible for gravitational repulsion that causes the universe to expand at ever faster rates. Now take “black holes”, the compact objects formed with the collapse of giant stars whose nuclei are three times as large as the solar mass; or “wormholes”, too.

Editorial Office address:
Science in Russia
26, Maronovsky Pereulok, GSP-1
Moscow 119049, Russia
Tel./Fax: 8-499-238-43-10
www.ras.ru

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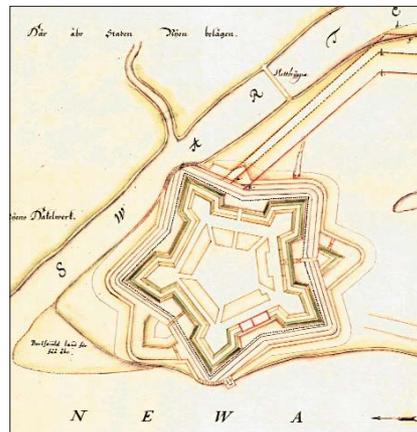
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ARCHEOLOGICAL MONUMENTS OF THE OKHTA CAPE



by Pyotr SOROKIN, Cand. Sc. (History),
Head of the St. Petersburg Archeological Expedition,
Deputy Director of the North-Western Research Institute
of Cultural and Natural Heritage, senior researcher
of the RAS Institute of History of Material Culture

The legend that Russian tsar Peter the Great laid the foundation of the northern capital on the uninhabited and desolate banks of the Neva is disproved increasingly by archeological discoveries. The studies carried out by the St. Petersburg Archeological Expedition of the North-Western Research Institute of Cultural and Natural Heritage in the last two decades in St. Petersburg and its surroundings, and especially in the mouth of the Okhta river (it flows into the Neva within the city limits), have proved that this territory was inhabited, at least, from the 4th millennium B.C. and was well developed by Izhora and Russian population in the Middle Ages.

UNDER FACTORY BUILDINGS

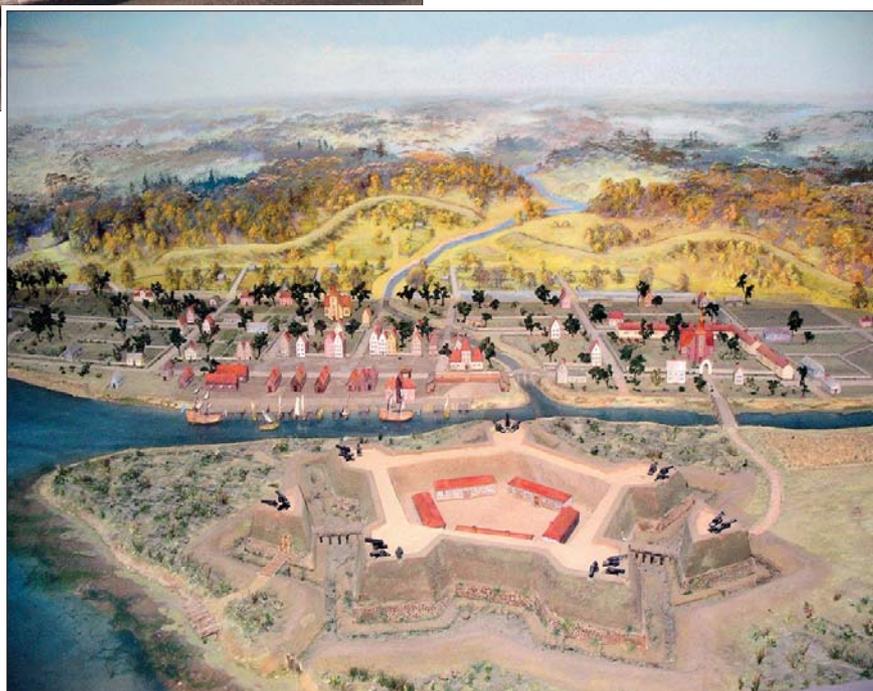
What is the prehistory of these discoveries? In 1751, one of the first Petersburg historians, a staff member of the library of the Imperial Academy of Sciences Andrei Bogdanov complained of absence of ancient monuments in the city and recommended preservation of the Swedish fortress Nyenschantz in the mouth of the Okhta river, which

had been taken by assault by troops of Peter the Great in 1703, as a monument to Russian victories in battle. In early 19th century, the first historian of Nyenschantz Andrei Gipping made a similar appeal. The remnants of fortress ramparts and moats were preserved on the Okhta up to the

Citadel of Nyenschantz fortress in the plan of 1681.



**Memorial composition
"Nyenschantz Fortress", 2000.
Authors, Vladimir Reppo
and Pyotr Sorokin.**



**Mock-up of Nyenschantz fortress
and the town of Nyen at the museum
"Landskrona, the Neva Mouth,
Nyenschantz", 2003-2007.**

middle of the 20th century and disappeared completely from the urban landscape only when new buildings of the *Petrozavod* enterprise were built in the 1970s. Taking into account ever-growing compact industrial planning of this territory, many historians were of the opinion that no traces of ancient monuments remained there.

Nevertheless, in 1992 the St. Petersburg Archeological Expedition of the North-Western Research Institute of Cultural and Natural Heritage began operations in the place of Swedish town of Nyen and Nyenschantz fortress under the program "Studies of pre-Petrine monuments in the territory of Petersburg". Ten prospecting shafts around 3.5 m deep with about 20 m² total area were sunk using the Swedish layout plans of the 17th century in several pocket-size areas free from factory buildings, engineering services and asphalt-concrete pavements. The first findings referred to the 16th-17th centuries were discovered there. Thus, it became clear

that traces of the past were preserved there, and further studies were required. Based on the obtained results, we prepared accounting records, and in 2001 the cape where the Okhta met the Neva was put in the state protection as a newly revealed object of cultural heritage. Thus, a legal framework to continue archeological studies of the territory came to hand. By the 300th anniversary of Petersburg we managed to carry out memorialization of the place using funds of Russian and Swedish patrons of arts, namely, to produce a memorial badge devoted to ancient events and to open the first historico-archeological museum "Landskrona, the Neva Mouth, Nyenschantz" in Petersburg.

The further large-scale excavations were undertaken in 2006-2009 by the St. Petersburg Archeological Expedition together with the RAS Institute of History of Material Culture in connection with the plans of constructing of the Okhta public and business high-rise center there (in late

**Excavations of wooden structures
of the Neolithic.**



**Findings of the Neolithic
and early metal age: stone implements,
ceramics, amber decorations.**

2010 this idea was renounced). A territory with a total area of about 30,000 m² was studied during that period. Archeologists were surprised to find a monument under the factory buildings demolished in 2007, unique not only for Russia but also for the whole of North-Eastern Europe. In beddings up to 5 m thick cultural layers and objects were discovered, which were widely separated in time, namely, sites of the Neolithic and early metal age, a site of medieval settlement on the Okhta Cape, the 13th century Landskrona fortress, a late medieval burial ground of Nevskoye Ustye, a Russian settlement of the 16th-17th centuries, and the 17th century Nyenschantz fortress. Each of them will be discussed below.

SETTLEMENTS OF THE NEOLITHIC AND EARLY METAL AGE

The cultural layers and findings of the Neolithic and early metal age (4th-3rd millennia B.C.) were revealed over the

whole cape, where the Okhta meets the Neva. The first people settled there after retreat of the Littorina Sea*. It is evident from the remnants of wooden structures found there and related to commercial and economic activity of people. Various stone implements, bark goods, a set of amber decorations and also numerous articles, such as ornamented crockery and fishing traps made of pegs and plates, are preserved fairly well. A settlement, called *Okhta 1* by our specialists, ranks among the most singular objects in the territory of the North-Eastern Europe due to its scale and safety of the remnants of wooden structures.

According to a hypothesis of the scientific community, the Neva was always a wide channel between the Lake Ladoga and the Gulf of Finland, which remained intact up to the Middle Ages. However, our excavations disprove this point

* Littorina Sea is a sea basin existing in the postglacial time (about 7-4.5 thousand years ago) in the place of the contemporary Baltic Region.—Ed.



Ditch of a site of ancient settlement on the Okhta Cape and a ditch with a 13th century paling.

of view. As it has turned out, the settlements of the Neolithic are separated from the overlying medieval soil layers by sand drifts up to 1 m thick, and scientists referred them to the time of the Neva origin. According to paleogeographers, it appeared about 3,100 years ago as a result of breaking through of water from the Lake Ladoga to the Gulf of Finland. Our findings testify that approximately 2,800 years ago people returned to this locality. The studies of the central part of the Okhta Cape revealed traces of man's stay there in the Bronze age* and also in early Iron age**, which was proved by the remnants of bonfires and artifacts (800 B.C.–500 A.D.).

SITE OF ANCIENT SETTLEMENT

The land in the mouth of the Okhta river is a high terrain, inaccessible for floods, with a good harbor for moorage and protected by water boundaries. Therefore, since the olden times it was considered one of the most favorable places for human habitation in the lower reaches of the Neva. This place occupied a convenient geographical position. It was located at the intersection of the then most important communication routes, i.e. the water route running down the Neva and the land route connecting Novgorod and the Izhora land*** with Karelia and Finland. All this predestined

* Bronze age is a historical period characterized by the spread of bronze implements in late 4th-early 1st millennia B.C. For the northwest of Russia the dating is different, namely, 2nd-1st millennia B.C.—*Ed.*

** Iron age is a period in the human development, which started with the spread of metallurgy of iron. It replaced the Bronze age mainly in the middle of the 1st cent. B.C.—in the middle of the 1st cent. A.D.—*Ed.*

*** Izhora land is a historical name in the 12th-18th centuries of the territories on the banks of the Neva and the southwestern area of the Lake Ladoga settled mainly by the Finno-Ugric people called Izhora. From the 12th century it was a possession of Veliky Novgorod and from 1478 was a part of the Russian state. In 1581-1590 and 1609-1702 it was occupied by Sweden and was returned to Russia in 1702-1703.—*Ed.*

the origin of a settlement center of the region there, which was developing up to the time of foundation of St. Petersburg. The initial fortification was situated in the northern and highest part of the cape. The excavations revealed a defensive ditch of about 80 m long, up to 3.5 m wide and around 2 m deep, which crossed the cape in the east-west direction between the Neva and the Okhta. It was followed by an earthen wall (it is partly preserved), which ceased its existence due to the seizure of this locality by the Swedes and construction of new fortifications by them.

LANDSKRONA

The Swedes set up a Landskrona fortress in the summer of 1300. The first Novgorod chronicle reads: “The formidable Swedish troops came from over the sea and brought with them skilled craftsmen from the great Rome from the Pope, founded a town over the Neva in the mouth of the Okhta river and gained a foothold with tenacity, mounted projectiles, boasted of it and named it the Crown of the Earth.”

In line with the Swedish chronicle, the fleet with troops numbering 1,100 men was headed by the governor-general Torgils Knutsson. According to the chronicler, upon completion of the construction, a ditch was dug between the two rivers, and a wall with eight towers equipped with embrasures was built over it, and the troops were placed behind them. After the fleet sailed off, a garrison consisting of 300 men was left in Landskrona.

According to the same source, on May 18, 1301, the Russian troops headed by the grand prince Andrei, a son of Alexander Nevsky*, approached the fortress, and “the town was seized, some townsmen were killed and hacked to

* See: A. Bogdanov, “Alexander Nevsky, Russia’s Number One”, *Science in Russia*, No. 5, 2010.—*Ed.*



Burials from the burial ground on the left bank of the Okhta.

pieces, others were bound hand and foot and taken away from the town, and the town was burnt down and destroyed”. (These and subsequent events are described in detail in the monograph by the author of this article “Landskrona, the Neva Mouth, Nyenschantz”, Litera Publishers, St. Petersburg, 2000.)

The traces of Landskrona are found in an area of about 15,000 m². The modern excavations allowed to establish that it was a regular fortification of a rectangular form surrounded by two lines of ditches of 11 m and 15 m wide. The ditches had a trapezoid section and a flat bottom. The wooden sidewall lining protected them from sliding. The length of the defensive lines was about 150 m on the eastern side and 140 m on the southern one. It should be noted that our studies did not confirm the idea of Landskrona as a typical cape fortress of those days, which had been formed earlier on the basis of documentary records. The design peculiarities of its ditches have no parallel in medieval fortifications of Eastern Europe. It has also been found that to strengthen a site for initial construction, a platform with 8-16 m wide log cages in its base was constructed on this site. It appears that the fortress was constructed according to a uniform project, and it involved a regular layout.

We studied the base of the burnt down fortress tower in the western line of the fortifications. The tower basement served as a well. Probably, there were plans for construction of more solid structures instead of those built. However, in contrast to Finland and Karelia, where the Swedes built stone fortifications, here the required material was insufficiently represented.

Some traces of the assault and destruction of Landskrona were found on the slope of the internal defensive ditch.

They include burnt down parts of the fortress walls and arbalest bolts, arrow and spear heads.

THE NEVA ESTUARY

Soon after the downfall of Landskrona, the local population set about developing the territory in the Okhta river estuary. The first description of local settlements (three villages and a small village with 18 houses only) is found in the Register Book of *Vodskaya Pyatina** of 1500. The lands in the lower reaches of the Okhta river belonged to two noble boyar families in Veliky Novgorod and after its joining to Moscow in 1478 were included into possession of the Great Prince.

Judging by fragmentary documents, already in the 16th century these settlements gave rise to a trade center called Nevskoye ustye (Neva Estuary) (more detailed information is given in the Marriage Record Books of 1599-1600). It included the Church of Michael the Archangel, a pier, the Sovereign's Arcade and a custom-house. International trade was also carried out there. It is known that only in 1615 sixteen ships came here from Vyborg, Ivangorod, Ladoga, Narva, Novgorod, Norrköping, Revel and Stockholm. The findings related to the said settlements of the 14th-16th centuries are represented by fragments of ceramic vessels made of white and red clay.

A cemetery in the Neva estuary on the left bank of the Okhta river refers to the 16th century. In the course of excavations 216 burials were studied. It turned out that a part of them was destroyed or transferred when fortifica-

* *Vodskaya Pyatina* was one of the *pyatinas* (administrative-territorial regions) of the Novgorod land till 18th century; it is situated between the Volkhov and Narva rivers. It got its name from the Finno-Ugric people *Vod* inhabiting these lands.—Ed.



Secret passage in a flank of the Myortvy Bastion.

tions were constructed in the 17th century, and another part was damaged by modern engineering services and constructions. The backfilled ditches reveal, as archeologists say, redeposited human bones in large quantities related to approximately 300 destroyed burials. On the preserved parts of the cemetery numerous graves overlap each other in two or three layers. The buried lay on the back with crossed arms, partly in coffins, of which there remained log decay and forged nails. Their heads were oriented mainly to the southwest and, occasionally, to the northeast and northwest. There were found two group burials, which probably were attributed to military activities as the dead were placed in a row on a wooden flooring. Lead bullets were found among the human bones in five graves.

As the burials were held in Christian tradition, the associated findings were scarce. Among them there were 9 Swedish coins, a piece of an iron knife, an orthodox bronze body cross, details of clothes and decorations.

NYENSCHANTZ

In 1611 the Swedish king Karl IX (1550-1611) started a military intervention against Russia and ordered to build a fortress in the estuary of the Okhta river holding initially 500 people. The fortress was called Nyenskans (Neva fortification), but later on in the Russian language it acquired a somewhat different, German, sounding, namely, Nyenschantz. In 1617, according to the Treaty of Stolbovo, the Izhora land was secured to Sweden. In 1632 the town of Nyen was set up by order of king Gustav II Adolf (1594-1632) on the right bank of the Okhta opposite the above fortress. During the last decade the queen Kristina (1626-1689) granted to it all privileges of a town.

Initially the fortification situated on the cape between the Neva and Okhta rivers had a rectangular form, but later on its geometry changed. It is represented in the form of an irregular hexagon on the map of the Neva estuary in 1643. During the Russo-Swedish war of 1656-1661, Nyenschantz was seized and destroyed by Russian troops. However, after the war the city and its surroundings were left to Sweden.

It should be noted that the projects of the 1630s-1650s developed by architects Georg Schwengel and Juhan von Rodenburg envisaged construction of a new citadel and fortifications around the already established city with lands on the Okhta left bank though not yet developed. In 1652, a revised project of Nyenschantz fortifications was approved. The construction was headed by the engineer Heinrich von Seulenberg. The star-shaped citadel had five bastions and two ravelins. The main gates looked out on the Okhta river, the bridge over which connected the citadel with the city center. According to the preserved plan of 1681, the diameter of a circle according to its extremities made up about 245 m. The width of bastions reached 60 m, the length of wall sections between the bastions was about 50 m, the rampart width was about 19 m and that of the ditch was 28 m.

But as far back as the 1670s, the concept of the fortress defense underwent some changes. In their design approaches architects Erik Dalberg and Karl Stuart offered to transfer the whole city to the cape between the Neva and Okhta, defending it by external line of fortifications. However, the respective constructions with three bastions to the south of the citadel were built only by the time of outbreak of the Northern War (1700-1721)*.

* See: V. Artamonov, "Ineffable Victory", *Science in Russia*, No. 5, 2008.—Ed.

Mortar bomb and balls.

In Nyen, whose population made up about 2,000 people by the middle of the 17th century, the Swedes, Germans, Russians and Finns were engaged in trade, crafts, farming, fishing and navigation. Its center was represented by a town hall, Swedish and German churches, a school, a port and a shopping place. The town development was carried out along the Okhta and Chernaya (the right tributary of the Neva) rivers and also along the roads running to Vyborg, Kexholm (today Priozersk) and Noteburg (today Schlüsselburg). A hospital, a brick factory and enterprises engaged in shipbuilding were situated in the city suburbs. The urban estate—the village of Spasskoye with an orthodox church and Russian and Izhora population was located on the opposite bank of the Neva river in the region of the Smolny Monastery. It had a ferry traffic with Nyen.

In the course of the Northern War, after the Russian troops seized Noteburg, the Swedish command evacuated the population of Nyen in October of 1702, and the town itself was burnt down. On April 25, 1703, the twenty-five thousand strong corps of Russian troops under command of Peter the Great and field-marshal Boris Sheremetev started a siege of Nyenschantz defended by a garrison numbering 600 men. After a mass bombing, which inflicted heavy losses on the fortress, the Swedes surrendered on May 1.

The excavations revealed a section of Nyenschantz fortification ramparts, which was referred to the first half of the 17th century and consisted of three lines of turf layers. Besides, the parts of the timber construction, which had perished in fire, were studied in the center of which there was a destroyed stove made of limestone blocks, brick and glazed tiles. The preserved coins of the queen Kristina time, who was on the throne till 1654, prove that the construction was burnt down probably at the beginning of the Russo-Swedish war of 1656-1661.

We revealed and studied sizable sections of fortress ramparts of the second half of the 17th century preserved there at a depth of about 4 m. Their internal slopes in the newly constructed fortress were lined with turf layers about 1.5 m wide protecting the slope from sliding. The round log paling preserved at a height of about 1.2 m was found within 3 m from the rampart wall.

The wooden platforms, used for delivering flanking fire, were near flanks (side faces) of two bastions at a height of about 1.5 m above the ditch bottom. Secret passages were revealed in places of contiguity of curtains to bastions, which served as staircases leading from bastions to ditches. They were used by the besiegers to go down, imperceptibly for an attacking party, to a wooden platform near a bastion flank and deliver fire along the paling line.

The destruction of the fortress constructions during the assault is traced in different places. The evidence of those



days is represented by bullets, canister shots, cannon balls, fragments of cast-iron bombs, stretchers and wheelbarrows revealed at a ditch bottom and also inside the fortress.

Finally, different articles were found in the structures of Nyenschantz, which were related to the North-European cultural tradition, including fragments of ceramic and glass vessels, stove tiles, roof tiles, fragments of clayey pipes, leather footwear, woodwork and stone millstones. The substantial quantity of findings on the Okhta Cape refers to the 18th-19th centuries, when a nursery for plants and a shipyard were located there.

In conclusion we should point out that the excavations revealed unique objects containing information on the historical layout and design of fortification structures of different periods. In line with the federal law on objects of cultural heritage, they should be preserved at a place of discovery.

The archeological studies carried out on the Okhta Cape resulted in a new scientific information on the history of the Neva region and a valuable collection of artifacts related to the 4th millennium B.C.-17th century, which allows to pose a question of creating an archeological museum in St. Petersburg. Organization of a natural archeological museum-reserve would be the best way of preserving the discovered fortress structures.