Russian Academy of sciences and Arctic exploration in the early twentieth century: from the history of the First Polar expedition

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Abstract. The article is devoted to the First Polar expedition of the beginning of the twentieth century under the auspices of the Imperial Academy of Sciences. The article contains some information about the financing of the expedition. It is noted that the President of the Imperial Academy of Sciences, Grand Duke Konstantin Romanov, played an important role in the organization. The authors have considered this topic on the basis of archival materials stored at the St. Petersburg branch of the Archive of the Academy of Sciences. It is concluded that the scientific-practical results of the First Russian Polar Expedition were high. The expedition laid the foundation for a comprehensive study of the Arctic seas and land.

1. Introduction
Today, one can note a significant interest in the Arctic of the leading states of the world (not necessarily arctic ones, located geographically far from it – China, South Korea, France, Singapore, etc.), their desire for both cooperation and rivalry in the region. Obviously, due to its geographical position, Russia, as the leading state in the region, must consistently uphold its interests and form an agenda on the Arctic topic. Unfortunately, one has to admit that in today’s emerging systems of international political and scientific cooperation in the Arctic, the positions of the Russian Federation are not too strong. In 1996, Finland, not Russia, initiated the creation of the Arctic Council as a base platform for international cooperation in the region. In the Arctic subregional organizations – BEAC (Barents Euro-Arctic Council) and the Northern Forum – the Russian Federation and Russian regions occupy rather passive positions. In 2010, an agreement was signed with Norway on the delimitation of maritime spaces in the Barents Sea and the Arctic Ocean, as a result of which Russia lost about 175 thousand sq. km of the disputed waters, which entailed the loss of areas of traditional Russian fishing and allowed Norway to claim a 200-mile zone around Spitzbergen. There is much evidence of significant omissions in protecting the national interests of the Russian Federation in the Arctic: problems associated with the use of the Northern Sea Route (NSR) for the transport of international goods (the 1990 USA/USSR Maritime Boundary Agreement “On the Delimitation of the Continental Shelf and Economic Zones in the Bering and Chukchi Seas”), attempts to revise the status of the NSR as a Russian sea motorway, active Chinese investments in the mining industry of the Russian part of the region, entailing dependence on the supply of components from China and much more.
In this regard, the experience of Russia in the exploration, research and development of the Arctic region, in the development of international scientific cooperation is interesting and instructive. A little over a century ago, during the period of active development of the polar territories, Russia managed to occupy leading positions in Arctic research, to defend its territorial and national interests in the region. Well-considered, balanced positions and the help of the academic and state structures of the Russian Empire contributed to this.

New sea routes from west to east of Eurasia and North America, natural resources (initially coal, later – oil and gas), the race for primacy in discovering the geography of the Arctic territories and water areas, created the basis for the development of maritime transport links between the European and Far Eastern coasts of Russia, and allowed further specifying the territories and water areas located north of the Siberian coast that belonged to Russia. Active research and development of the Arctic in the second half of the nineteenth century – beginning of the twentieth century – is also an example of international scientific-practical cooperation between the discoverers of the Arctic lands, in which Russia took an active part.

The Spitsbergen archipelago and the mostly Sannikov Land located in the zone of special attention of the Swedes, Norwegians, and Russians is one of the most striking examples of competition in that period. Many states wanted to find and include the Sannikov Land in their territories, because in the future this would allow claiming their rights to the entire “north-polar continent”, which seemed to be located at the North Pole at the end of the nineteenth century. In addition to the obvious geopolitical significance of these discoveries, there were important economic plans – to create bases for Russian ships leaving for the eastern part of the Arctic [1], [3]. This largely explains the significant interest of the Russian Imperial Academy of Sciences and the Russian Geographical Society in organizing expeditions in the Arctic seas, their significant financial and administrative support for research; later, this laid the foundation for the development and comprehensive study of the region. Organization and holding of the First Russian Polar Expedition of 1900-1903 became one example of the active participation of scientific and administrative structures of the Russian Empire in the development of Arctic research.

2. Literature review
There are not too many studies devoted to the history of the First Russian Polar Expedition, the assessment of its significance for the development of research in the region. The first publications appeared back in 1903-10, they were mainly devoted to the analysis of expedition materials; during the same period and a little later, the main expedition materials were published. The diaries of the deceased expedition leader Toll were published by his widow in 1909 in Berlin. Only after 50 years – in 1959 these diaries were translated from German to Russian and published in a shortened form under the title “Sailing on the Yacht “Zarya” [13]. In the period of the USSR, this topic was addressed not often and rather superficially. This is partly due to a certain political context – in the Soviet period, it was not customary to give publicity to the participation of members of the imperial family and leaders of the White Movement in the development of the North. In Soviet historiography, many heroic pages were hushed up – the ones related to the names of Toll, Kolchak and, finally, the president of the Academy of Sciences, Grand Duke Konstantin Romanov, who played an important role in the 1903 rescue expedition. Today, one can note a number of published works devoted to the expedition that are more journalistic than research in nature. This is the work by Kuznetsov “In search of the Sannikov Land. Polar expeditions held by Toll and Kolchak” [7], works by Cherkashin, Bogdanov, Sinyukov and others [2], [4]. It should be noted that attention is paid to the actual evaluation of the expedition. The articles by Tchaikovsky, Sobolev, Skrydlov, Kovalyev, Kulik, Polikova and other authors should be noted [6], [9], [10], [12]. Among foreign researchers, attention to this topic is insignificant. For example, in the monograph by Matti Lainem and Juha Nurminen “Ultima Thule” (Arctic Studies) [8],
published in Helsinki in 2014 and translated into Russian, the First Russian Polar Expedition was barely touched upon.

3. Results and discussion
An important role in the organization and financing of scientific Arctic expeditions was played by the Russian Imperial Academy of Sciences, whose president during 1898-1915 was Grand Duke Konstantin Konstantinovich Romanov. Many of these expeditions were of great scientific and practical importance. For example, contemporaries highly estimated the Spitsbergen expedition of 1899 and called it “the most important scientific campaign” [10]. So that this expedition could take place, allocations in the amount of 210 thousand rubles were received due to the efforts of the August President of the Academy of Sciences, which was a very considerable amount for the end of the nineteenth century. In May 1899, two ships “Bakan” and “Icebreaker-2” sailed to the shores of Spitsbergen. At the beginning of the journey, the captain of one of the ships Ergomyshev telegraphed to the Academy and its president: “The Bakan team, going on a long voyage, respectfully thanks you for the high attention to it” [10].

The Spitsbergen grade measurement expedition lasted long 16 months and turned out to be a serious test for its participants. After their successful completion in early October 1900, the expedition members returned to St. Petersburg. In fact, this study of the vast polar archipelago became a kind of rehearsal that was more significant according to the plans of the First Russian Polar Expedition held during 1900-1902 under the auspices of the Russian Imperial Academy of Sciences.

The First Russian Polar expedition began in the spring of 1900, although all the preparatory work went on throughout 1899. On April 2, 1899, Grand Duke Konstantin Konstantinovich wrote a letter to the Minister of Finance Witte, in which he substantiated the need for financial support for the expedition led by Eduard Vasilievich Toll to the Novosibirsk Islands. The President refers to a polar expedition project developed by Baron Toll to the “Novosibirsk Islands to explore the Sannikov Land located northward” [12]. Within the framework of the Academy, the project was carefully studied by a special Polar Commission, which members prepared their feedback. Most academics recognized the practical importance of the planned large-scale study of the Arctic territories. It should be emphasized that many prominent scientists of Russia supported the new project and proposals coming from Baron Toll. Among the devout project supporters were those who had already become famous in science, such as a botanist, geologist and paleontologist Schmidt, a famous geologist Karpinsky, a geologist and paleontologist Chernyshev, a brilliant chemist and researcher of metrology, hydrodynamics and geology Mendeleev, a prominent ichthyologist, zoologist and hydrologist Knipovich, as well as the most talented naval commander and oceanographer, Vice Admiral Makarov. The Vice-Chairman of the Imperial Russian Geographical Society (IRGO), an outstanding geographer and traveler Semenov-Tyan-Shansky was also a devout supporter of the new expedition. In April 1898, the well-known Norwegian polar explorer Fridtjof Nansen, who personally knew many Russian polar scientists, including Toll, supported Toll’s project in the IRGO. It is understandable why the support team turned out to be so representative – all of the above scientists and some others were well aware of the significance of the planned polar expedition by Baron Toll. The Academy of Sciences has appointed Academician Schmidt as Equipping Chairman for the new expedition to the Arctic [5. P. 280].

In his letter to Witte, the president of the Academy Grand Duke Konstantin pointed out that the equipped expedition team was preparing to work in the Arctic latitudes for two years and the requested amount of 180 thousand rubles was obviously insufficient. Grand Duke wrote that “this figure should be increased up to at least 240 thousand rubles, in view of the need to equip a specially designed vessel, which could ensure the success of the expedition and the safety of its members” [12], [10]. The first money for acquiring a vessel for a new polar expedition was received from the treasury in July 1899. As a result, a sailing bark with the Harald Harfager steam engine was purchased in Norway, but it had to be technically converted to solve new problems. In particular, steam winches were installed, the ice belt was significantly strengthened, part of the sailing equipment was dismantled accordingly. In fact, as for technical characteristics, the sailing bark turned into a schooner bark, or barkentine.
According to the proposal made by the August President of the Academy of Sciences, the Norwegian ship received a new name “Zarya”.

Among the arguments in favor of the significance of the planned expedition by Baron Toll, who had more than 20 years of experience in such studies by 1899, Konstantin Konstantinovich Romanov gave a number of justifications related to the international situation and competition with the leading countries-economic giants of the late nineteenth century and, above all, with Germany and the USA. In particular, he wrote as follows: “The expedition ... would now be especially well-timed... to study the true dimensions of the natural wealth of the New Siberian Islands and the islands located northward and their entire sea basin...”. Then he continued: “... the alleged abundance of game animals has already attracted the attention of German and American trading spheres. By occupying the Arctic islands, like Benett Island, foreigners can secure their fishing wealth to the detriment of our industry...”. It means that among the solid justifications for the need for scientific research in the Arctic, arguments related to international competition in this direction were paramount. It is by no means a coincidence that the leadership of the Academy of Sciences sent researchers to do particular activities in the northern and southern latitudes of the German Empire. At the stage of financial and organizational preparation of the First Polar Expedition, the President of the Academy of Sciences specially emphasized the fact that the projected expedition of Baron Toll, “besides being scientifically interesting, has important state significance” [12], [10].

Those researchers, who are inclined to the idea that Toll’s expedition, in addition to searching for the Sannikov Land, also planned to search for coal yields in order to provide ships traveling from the west to Kamchatka and Vladivostok, refueling in the middle of the NSR, are undoubtedly right [1], [3]. The special role of the Imperial St. Petersburg Academy of Sciences in equipping the polar expedition should be specially noted. Grand Duke Adjutant General Konstantin Konstantinovich Romanov was the main initiator in many endeavors. The August President of the Academy of Sciences personally petitioned on many economic and even personnel issues during the organization of a new scientific campaign. For example, there are some examples of his personal concern for members of the polar expedition. Due to the efforts of Konstantin Konstantinovich Romanov, the First Russian Polar Expedition led by Baron Toll received the amount that was about twice as much – 509 thousand rubles instead of the previously planned 240 thousand rubles.

On June 21, 1900, the yacht “Zarya” weighted anchor with 20 crew members. The first wintering took place off the coast of the Taimyr Peninsula. In the summer of 1901, Taimyr was examined by the expedition and on August 25, “Zarya” set off in search of the legendary Sannikov Land. However, by September 9, the ship came across a belt of powerful ice. The second wintering began in Nerpichya Bay. On July 5, 1902, Toll, accompanied by astronomer Friedrich Seeberg and two local guides Vasily Gorokhov and Nikolai Dyakonov, left the ship. First, they reached the island of New Siberia by dog sledding, and on August 3, they reached Bennett Island by kayaking. It was planned that Zarya would approach this island after 2 months, but it could not do it due to serious damage. In September, Captain Matisen led the ship to Tiksi Bay. Toll’s team set off south towards the continent on its own and actually disappeared from the field of view of the expedition. Only a few months later in 1903, Kolchak’s search team, with heroic efforts and with additional funds of the Academy of Sciences, could find the campsite of Toll’s group, as well as diaries and some materials.

Several naval officers were involved to participate in the First Polar Expedition and put at the disposal of the Academy of Sciences by the Naval Ministry. These were lieutenants Kolomeytsev (1867-1944), Matisen (1872-1921) and Kolchak (1874-1920). Nikolai Nikolaevich Kolomeytsev became commander of the yacht “Zarya”, but due to disagreements with the expedition leader Toll, left the ship in April 1901. Together with Stepan Rastorguev, he walked nearly 800 km in 40 days along Yenisei Bay and discovered a river along the road. This river flows into Taimyr Bay and now bears his name. Fedor Andreyevich Matisen studied with Kolchak and went on northern polar expeditions five times, but the most famous of all is the First Russian expedition led by Baron Toll in 1900-1902, in which Matisen became the new captain of the yacht “Zarya” after Kolomeytsev, and after Toll left the yacht in search of the mysterious Sannikov Land, he actually became the leader of
the expedition. Matisen was a member of the IRGO and the Academy of Sciences. The strait between Vilkitsky and Nansen islands off the northern coast of the Taimyr Peninsula bears the name of Matisen. Academician Schmidt, Lieutenant Mathisen, as well as Konstantin Konstantinovich Romanov upon their request, petitioned for inclusion of Kolchak in the expedition at the final stage of the preparation [5].

In 1903, a search expedition led by Lieutenant Kolchak discovered Toll's campsite on Bennett Island, his diaries and other materials. According to the will, Edward Toll’s diaries were handed over to his widow Emmeline Toll, who published them in 1909 in Berlin. Many pages of the history of the First Russian Polar Expedition were either deliberately erased or re-written, including for political reasons. It is clear that Kolchak’s contribution to the development of the Arctic region as a scientist was kept hidden for a long time. Thus, one of the uninhabited islands discovered in the 1901 expedition by Baron Toll got the name of Kolchak. This island is located in Taimyr Bay of the Kara Sea off the coast of the Taimyr Peninsula. In the Soviet period, Kolchak Island was renamed and bore the name of the officer Stepan Rastorguev, who served in the Yakut Cossack Regiment and participated in the famous polar expedition of the early twentieth century. Only in 2004-2005, it was decided to rename the island with its original historical name.

4. Conclusions
The First Russian Polar expedition under the auspices of the Imperial Academy of Sciences was a serious step forward in the development and study of the Arctic. It is not a coincidence that the scientific results of all three polar expeditions led by Toll, including the last in his life, amounted to seven volumes published by the Russian Academy of Sciences. The scientific-practical results of the First Russian Polar Expedition turned out to be very significant and promising, despite human losses. Toll's team, at the expense of the lives of its members, explored the unexplored Bennett Island, having collected a geological collection. The expedition laid the foundation for a comprehensive study of the Arctic seas and land. Significant results were mainly achieved in the description of the coast and measurements of the depths that scientists did throughout the expedition. Based on the results of the expedition, a geological map of the Taimyr Peninsula and Kotelny Island was compiled, and Kolchak could carry out a fundamental study on the ice of the Kara and East Siberian seas, which represented a new step in the development of polar oceanography.

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