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This collection provides an overview of articles, abstracts and theses related to the history of Oceanography, presented to the 7th International Congress. The International collaboration on the matters of investigation of the World ocean is considered. A special section is devoted to Oceanography formation. Special symposia are held on: 200th anniversary of the first Russian round-the-world expedition; 150th anniversary of the meteorological conference in Brussels; Maritime Königsberg. The history of marine organizations and the research fleet is reviewed. The organizers and founders of Marine science are praised. The history of exploration and research of the Polar ocean areas and the Navy contribution to the studies of the Ocean is reviewed. The countries' contribution to the specialized research of the ocean is presented. The matters of the oceanographic education, the history of the scientific magazines, Oceanography history, displayed in the museum collections and exhibitions are brought up. A special section is devoted to the Baltic sea studies.

General Editor: V. Stryuk, Dr. of Geographical Sciences.

Представлены материалы VII Международного конгресса по истории океанографии. Рассматриваются вопросы международного сотрудничества в исследовании Мирового океана. Становлению океанографии посвящен специальный раздел, в рамках которого представлены отдельные симпозиумы: «200 лет первой русской кругосветной экспедиции»; «К 150-летию Брюссельской метеорологической конференции»; «Морской Кёнигсберг». Отражена история морских организаций и исследовательского флота; представлены организаторы и деятели океанографической науки. Показаны история освоения и изучения полярных областей океана; вклад военно-морского флота в изучение океана. Отмечены вклады разных государств в специализированные исследования океана. Рассматриваются вопросы океанографического образования, истории научных журналов, истории океанографии в музейных коллекциях и экспозициях. Отдельный раздел посвящен изучению Балтийского моря.

Ответственный редактор – канд. геогр. наук В.Л. Стрюк.

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A. Smirnov

Zoological Institute

of the Russian Academy of Sciences, St. Petersburg, Russia

GREGORY PETROVICH GORBUNOV – ONE OF THE LAST RUSSIAN NATURALISTS

Gregory Petrovich Gorbunov was born on February 9, 1894 in Saint-Petersburg suburb – Krasnoe Selo. His parents were Pyotr Mikhailovich Gorbunov and Sofia Vasilievna Gorbunova. They had 10 children – four sons and six daughters, but only eight children survived. Grigoriy Petrovich's father was a hereditary honored citizen. He graduated from the Polytechnic Institution and worked as an engineer and later as a director of a paper factory not far from Saint Petersburg. Sofia Vasilievna descended from Pechatkins' family and was a joint owner of the factory, which her husband was a director. It was rather wealthy family. Both Gorbunovs' parents were the owners of a number of middle-sized houses, and, in 1911, the estate (about 1650 acres) in Yamburg was bought. Pyotr Mikhailovich was a liberal. At his factory he founded a school for workers' children. Also he took a great part in the building of the new house of May's gymnasium in Saint Petersburg, where his sons Nikolay and Grigoriy were educated. In 1912, Grigoriy Petrovich graduated from May's real school and firstly was going to be an architect but then changed his mind and, in 1913, passed his Latin exam and entered the Natural Department of the Physics-Mathematics faculty where he specialized as an ornithologist. His decision was influenced by the acquaintance with the famous Russian traveler Pyotr Kuzmich Kozlov in 1912, who was fond of ornithology and inculcated in Grigoriy Petrovich love for birds. During several years every summer Gorbunov had a number of ornithological excursions in Olonetskaya, Vologodskaya and Arkhangel'skaia provinces

as well as to the North and Central Caucasus and Transcaucasus. Gregory Petrovich gave his collections to the Zoological Museum of the Imperial Academy of Sciences. In 1915, Gorbunov visited Murman for the first time and since then was fond of the Arctic all his life.

The October Revolution changed Gregory Petrovich's life sharply. In 1918, he left the University probably under the influence of his elder brother Nikolay and started working for the Soviet institutions – firstly in the Central Committee for Petrograd Evacuation and then for the Educational Commissariat at Moscow.

Here I would like to say some words about Gregoriy Petrovich's brothers. His elder brother Nikolay entered the Bolshevik Party after the February revolution and developed active revolutionary activities. After the October coup d'etat he became Lenin's secretary. After that Nikolay Petrovich was a Headmaster of the Scientific-Technical department of the National Economy Higher Council. Later he organized many scientific and scientific-technical institutions, the Agricultural Academy, and headed the Tadjik-Pamir Expedition of the Academy of Sciences. Nikolay Petrovich Gorbunov took up some high administrative positions in the Academy of Sciences. He was elected as an Academician in 1935 and soon became the Obligate Secretary of the Academy of Sciences. He was arrested in 1937 and executed in 1938. It is interesting to note that in August 1920 he was the Member of Revolutionary Military Council of the 13th Army and fought against Vranghel's troops in the Crimea. His younger brother Alexander served in Vranghel's troops. If we take Gorbunov's family as the example we can clearly see the tragedy of the Civil War when a brother fought against brother. After Vranghel's defeat, Alexander left Russia, but later returned, apparently with a help of his elder brother. In 1937, Alexander Petrovich was subjected to repression. Their cousin Leonid Mikhailovich Gorbunov was also executed in the terrible years of 1937 – 1938.

In 1919, Gregory Petrovich Gorbunov worked at the Scientific-Technical department of the National Economy Higher Council, but in the autumn he returned in Petrograd University and at the same time he worked as the vice-director of Petergoff Excursion Station headed by Konstantin Mikhailovich Derjugin. In December 1919 his work and education were interrupted once again. Gregory Petrovich was mobilized and sent in the Military Quartermaster Academy, but soon in March 1920 he was lucky to returned to his education and work in the Petergoff Excursion Station. His took his finals, but deep nervous exhausting did not let him finish his education and only in spring 1924, after the long treatment Gorbunov graduated from the University. The theme of his Diploma was not ornithology but freshwater hydrobiology – it was the influence of his work on Derjugin's Petergoff Station in 1919 – 1921. It was in spring 1923, when Gregory Petrovich adopted the suggestion to participate in the Expedition to Novaya Zemlya. This was the part of the work of the North Scientific-Trade Expedition (later the Institution for the North Research) in the Arctic. Soon he started to work as an educated secretary of the Northern Scientific-Trade Expedition Council and since September 1924 as a researcher. After this, he was the Vice-Director and a member of the Scientific Board of the Institution. In 1930, because of the reorganization of the Institution for the North Research in the Arctic Institution Gorbunov moved in the Leningrad Institution of the Fishery Research as well as the whole Trade Biological Department. In this Institution he worked as a Senior Hydrobiologist. This time Gorbunov's scientific interests were entirely devoted to the Marine benthic fauna investigation. But there were no marine research in the Fishery Institution, so Gorbunov moved in the State Hydrological Institution where he worked as a Laboratory Chief in the Hydrobiological Department. In the Hydrological Institution Gregory Petrovich was very busy as a scientific administrator, so the Institution authorities did not let him go in the long arctic expedi-

tions. He was very upset by the refusal, referred to his participation in the famous "Sibiriakov" expedition of 1932, which Otto Julievich Schmidt invited him to join. Also he was not allowed to participate in the summer expedition season of 1934. When it became clear that he could not take part in the First High-latitude Expedition aboard the iceboat "Sadko" in 1935, Gorbunov decided to move in the Zoological Institute. Here he worked from 1934 till 1940 in the Malacological Department. In 1940, Gregory Petrovich was made redundant because of staff reduction. Gregory Petrovich's last work place was the Arctic Institution – the Institute, where he started his scientific carrier. Here he was a Chief of the Hydrology Laboratory. On February 14, 1942 in Vologda on his way from blockaded Leningrad in evacuation Gregory Petrovich died. Gregory Petrovich was married twice and two daughters were born. His second wife was Tamara Semenovna Pergament.

Gregory Petrovich was a passionate researcher of Nature and could not imagine his life without arctic expeditions. As it was mentioned above he firstly visited Murman in 1915 and then participated in work of the North Scientific Trade Expedition (later the Institution for North Research) to Novaya Zemlya in 1923 and 1924. During these expeditions Gorbunov investigated bird colonies on the seashore and the plankton of freshwater lakes. In March 1925, the Institution for the North Research bought in Norway, the schooner "Elding" (later renamed in the "Zarnitca") and became relatively independent in its marine investigations. The "Elding"'s Expedition of 1925 was lucky to bent round Novaya Seemly from the North. During this expedition Gorbunov not only continued his research of the bird colonies and the freshwater plankton, but also began to collect some samples of marine benthic fauna for the first time. It was the investigation of marine benthos that took the main place in Gregory Petrovich's scientific work in the following years. During the expedition of 1927 aboard the "Zarnitsa" more important marine investigations were done in 1925. They included several regions of the Barents Sea according to the Soviet-German Investigation Program. Gorbunov was a chief of the marine investigations in this expedition. He collected marine benthic organisms, together with Pavel Vladimirovich Ushakov. He also continued his ornithological observations and plankton collection in Novaya Zemlya lakes. The results of these Novaya Zemlya expeditions Gorbunov published his monograph "Bird colonies on the seashore of Novaya Zemlya" and the writings "Materials for mammalian and avian fauna of Novaya Zemlya" and "Previous Report about fresh-water and salty lakes of Novaya Zemlya made in 1923, 1924 and 1925". These works are of great value nowadays because of the explosions of atom bombs on Novaya Zemlya. They can serve as a standard for evaluation of the ecological changes on this archipelago.

Before the discussion of the next step of Gregory Petrovich's expedition activity it should be noted that in 1926 and 1928 he also worked in the North. In 1926, Gorbunov was the chief of the trade expedition on the West Murman and, in 1928 he started the work for the all-year observations on the Murman lakes. This investigation was interrupted by the next reorganization of the Institution for the North Research.

Since 1929 Gregory Petrovich's main scientific interest was the investigation of marine benthos. In 1929, he took part in the High-latitude Government Expedition aboard the icebreaker "Sedov" to the Franz-Josef Land as a hydrobiologist. The journalist Exler published the book about this expedition named "At the world's end". In 1930, Gorbunov participated in the expedition of the Arctic Institute on board of the same vessel to the Franz Josef Land, Novaya Zemlya and the northern part of the Kara Sea. Along with the hydrobiological research he observed sea birds and mammals. Very interesting stories about this expedition belong to the well-known Russian writer Sokolov-Mikitov. The following year Gregory Petrovich as a hydrobiologist took part in the expedition aboard the icebreaker "Rusanov" in the

south part of the Kara Sea. Then in 1933, he tried and get permission from the authorities of the Hydrological Institute to take part in the expedition aboard the icebreaker "Sibiriakov". There he investigated the southeastern part of the Kara Sea.

In 1935, the new step in the Russian arctic research began. In the northern part of Greenland, the Barents and the Kara Seas the investigation aboard the icebreaker "Sadko" was started. During this expedition Gorbunov was the first who dredged on the bathyal of the Arctic Basin. 65 hydrobiological stations were made in the very hard-hitting regions of the High Arctic. The following year Gregory Petrovich was aboard the "Sadko" again. Unfortunately, the scientific program of this expedition was reduced because the "Sadko" helped in the navigation along the Northern Sea Route. In spite of this, some stations were found near Franz-Josef Land, Taimir Peninsula and the Northwestern part of the Kara Sea.

Next, the third, "Sadko"'s expedition in 1937 – 1938 was the hardest and last for Gorbunov. Expedition worked mainly in the Laptev and East-Siberian Sea, Novosibirian Shoalwaters and the Central Part of the Arctic Ocean. Gregory Petrovich made the biological collections together with Tamara Semenovna Pergament. In the end of navigation of 1937 the "Sadko" together with the "Sedov" and "Malygin" found themselves in pack ice. But the investigations were continued during the drift in the very hard conditions of the Polar night. It was very difficult work. We can judge about it, for example, by the fact that it took four hours for two men to wash, sort and fix the small (about 80 kg) dredged sample. The samples sorting was made at the light of dim and smoky lamps. Gregory Petrovich reported to Samailovich, who was the expedition chief, that his collaborators had problems with their eyesight. Nevertheless, the hydrobiologists succeeded in collecting the unique material from the completely unexplored regions. Gorbunov's writing, which in fact was a monograph "Bottom life of the Novosibirian Shoalwaters and the Central Part of the Arctic Ocean" was published in 1946, after Gregory Petrovich's death. It is the hand book for all zoologists, who study the bottom life of the High Arctic at present.

It is amusing, how this man was devoted to the Arctic. Almost every year starting from 1915, except the years of the Revolution and the civil war, and 1932 and 1934, he spent in the hard arctic expeditions, where working conditions could not be compared with the modern ones. Dredging on the depth of the Polar Basin demanded the modification of the trawl, and Gorbunov made it. So, this Sigsbi-trawl became suitable for trawling on the depth in the ice. This modification, named Sigsbi-Gorbunov trawl was later used by the Russian hydrobiologists aboard the vessel "Vityaz", when she worked at the abyssal depth.

Gregory Petrovich collected, sorted and documented his material very thoroughly. The outstanding Russian hydrobiologist Gurjanova said, that in Gorbunov's samples the number of some benthic invertebrate species, for instance, the amphipod crustaceans, overcame the number of species in the samples of other researches in 3 – 4 times. We know about the distribution of some small-size species in the Arctic only due to Gorbunov's collections. During his expeditions, Gregory Petrovich Gorbunov collected the unique material referred to the different animals taxa: birds, fresh-water plankton, benthic invertebrate animals from the northern seas.

Passing on to the characteristic of Gorbunov's scientific activity, it should be marked that he was one of the last naturalists. He knew birds' biology perfectly well and observed their life. He spent many hours observing the bird colonies on the seashore. He also wrote papers about the sea-mammals as well as about fresh-water plankton. He determined partly by himself his collections of marine benthic invertebrates. He studied the biodiversity of the arctic crustacean, echinoderms and mollusks. He paid special attention to the Kara Sea. Unfortunately, this work was not finished. Some part of his material was included in the writings about the Kara Sea

benthic fauna by his wife Tamara Semenovna Pergament. Gorbunov also paid attention to the questions of biogeography. In our opinion, the greatest Gorbunov's scientific contribution was the elaboration of the problem regarding to the using of the benthic organisms as the indicators of the average hydrological regimen. Gorbunov believed that animals species and subspecies satisfactory interpreted in systematic and ecological regard can characterize the average hydrological conditions and serve as the indicators for the distribution of water masses of a different type. At the same time, the species which are the excellent indicators in other seas, could not be indicators at all. He insisted that the selection of species, as biological indicators of hydrological regimen, must depend on the concrete problem. Some general statements concerning this question were found in his special work "Biological Indicators and the Importance in the Study of the Arctic", published in 1934. In his paper of 1937 "Bottom Life (benthos) of the Kara Sea as the indicator of waters origin" he wrote: "In the seas, where hydrological investigations could not be made all the years round as they are covered with ice, and, especially in those seas, where the investigations could be made only in summer and early autumn periods, the hydrological conclusions from the benthos distribution could give and really give more full and correct conception about the overall year hydrological sea regimen, about the movement and distribution of the composed waters, than the hydrological investigations. The Kara Sea is supposed to be that exactly sea. Even at the modern extent of benthos material processing, which we have now for the Kara Sea. We can make such conclusions about hydrological regimen of this sea on the basis of these materials, which hydrologists yet could not do. These conclusions are only first and general results, but they have already marked those territorial gaps in our knowledge, which have to be filled (question-marks on the map)". In 1941, Gorbunov tried to show the continental waters distribution in the Siberian seas, analyzing the distribution of two bivalve species, sharply different in their biology. In the paper the "hydrobiological peculiarities of Shokalsky channel" Gorbunov stated the fact of the penetration of the bathyal waters of the Polar Basin from the Laptev Sea to the channel. Later, this method of bioindicators of hydrological regimen was forgotten, because of the development of the technical means in the hydrological measurements. But in the last decades, the hydrobiologist Jurii Ivanovich Galkin, who studied the changing dynamics of the bottom waters and the Barents Sea fauna for more than ten years, successfully used this method. Besides, the method is based on the careful study of the taxonomy and autecology of the marine benthic invertebrate species, and, because of this, the data collected can be used for the monitoring of the sea pollution.