

State Goals and Private Interests in the Development of Transport Infrastructure in the Russian Black Sea Region in the Second Half of the Nineteenth Century

Lyubomir Pozharliev *

Abstract:

The article examines the development of transport infrastructure and shipping in the Black Sea region through the case of the establishment and initial development of the Russian Steam Navigation and Trading Company (ROPiT) between 1856 and the end of the nineteenth century. ROPiT was a joint-stock company co-owned by private entrepreneurs and the state. The article introduces the concept of “systemic actors,” and argues that the construction of Russia’s maritime infrastructure in the Black Sea region became possible due to the efforts of two systemic actors – Nikolaj Arkas and Nikolaj Novosel’skii – who had a comprehensive vision about the development not merely of maritime infrastructure but of infrastructure as a large technological system (cf. Hughes). The development of infrastructure also resulted from constant negotiation between the state’s and entrepreneurs’ different interests. The article thus challenges the thesis that the modernization of the Russian Empire was sustained by top-down state intervention, and shows that modernization developments, with regard to transport infrastructure, consist of a much more complex process encompassing the constant negotiation and confrontation of state and private interests. The researched case can be better explained by the notion of “entangled modernities.”

Keywords: Russian History, Infrastructure, steam shipping

* Dr. phil., Leibniz-Institut für Länderkunde, Leipzig, ORCID ID: 0000-0003-4395-8211
e-mail: l_pozharliev@leibniz-ifl.de

1. Research questions and concepts

This article examines the development of transport infrastructure and shipping in the Black Sea region through the case of the establishment and initial development of the Russian Steam Navigation and Trading Company¹ (ROPiT) from 1856 to the end of the nineteenth century. ROPiT was a joint-stock company co-owned by private entrepreneurs and the state.

The article lies in the field of the social history of technology. I understand “infrastructure” in the sense of Thomas P. Hughes’s notion of large technological systems whose components are not only physical artifacts but also organizations, knowledge, legislative artifacts, etc.² Contemporary studies of infrastructure bring together politics, economics, social relations, technology, space, and time.³ In this article I will not deal with the technological aspects of the construction and development of maritime infrastructure, although they are important. I will concentrate on the biographies of two actors, Nikolaj Arkas and Nikolaj Novosel’skij, who invested their efforts in the establishment of such a structure. The question of the mobility of actors is important for the Transottomanica program⁴ and also in biography research.⁵ I will therefore also focus on this aspect as well as on the cultural and social capital⁶ of Arkas and Novosel’skij, and on their role in the success of their work.

¹ Russian: *Russkoe obščestvo parochodstva i torgovli* – ROPiT.

² Thomas P. Hughes, “The Evolution of Large Technological Systems,” in *The Social Construction of Technological Systems*, ed. Wiebe E. Bijker, Thomas P. Hughes, and Trevor Pinch (Cambridge, MA: MIT Press, 1987), here 45.

³ Dirk van Laak, *Imperiale Infrastruktur: Deutsche Planungen für eine Erschließung Afrikas 1880–1960* (Paderborn: Schöningh, 2004).

⁴ For a detailed presentation of the priority programme Transottomanica, see Stefan Rohdewald, “Mobilität/Migration: Herstellung transosmanischer Gesellschaften durch räumliche Bewegungen,” in *Transottomanica – Osteuropäisch-osmanisch-persische Mobilitätsdynamiken: Perspektiven und Forschungsstand*, ed. Stefan Rohdewald, Stephan Conermann, and Albrecht Fuess (Göttingen: V&R unipress, 2019), 59–82.

⁵ Malte Rolf, “Einführung: Imperiale Biographien: Lebenswege imperialer Akteure in Groß- und Kolonialreichen (1850–1918),” *Geschichte und Gesellschaft* 40, no. 1 (2014): 5–21; Sarah Panter, Johannes Paulmann, and Margit Szöllösi-Janze, “Mobility and Biography: Methodological Challenges and Perspectives,” in *Mobility and Biography, Jahrbuch für Europäische Geschichte/European History Yearbook* 16, ed. Sarah Panter (Berlin: De Gruyter Oldenbourg, 2015), 1–14.

⁶ Pierre Bourdieu, “Ökonomisches Kapital, kulturelles Kapital, soziales Kapital,” in *Soziale Ungleichheiten, Soziale Welt, Sonderheft 2*, ed. Reinhard Kreckel (Göttingen: Schwartz, 1983), 185.

Of special importance in understanding the emergence and development of ROPiT, and hence of the maritime infrastructure in Odessa, are the visions and strategies of the key actors. In this regard, I will examine two questions concerning those strategies.

The first one concerns *systemic complexity in constructing maritime infrastructure*. Precisely because infrastructures are comprehensive technological formations, their components must be systematically interconnected. On the one hand, this means that they can be built only in an environment in which such systemic interconnection is possible; on the other, after beginning construction, they provoke the creation of other infrastructures and institutions. Hence, to ensure their success, the key actors should bear this systemic interconnection of infrastructure components in mind, and set out not just to build a port, purchase ships, and so on, but also to develop various transport routes and services, as well as educational, financial, commercial, and other institutions that will make maritime shipping more efficient. Questions should be raised and solutions proposed about, for example, how exports will be moved out and imports in; whether there will be enough trained personnel to handle not only the shipments but also the commercial servicing of ships, how this type of transportation will be regulated, etc. The systemic approach requires a vision of all the components in an infrastructure – physical artifacts, organizations, knowledge, and legislative artifacts. This is a vision that encompasses the entire complexity of the interdependence of the future elements of the infrastructure in question. I will call those who have such a vision and work on its realization *systemic actors*.

The second question addressed in my analysis is as follows: What position can facilitate such an all-encompassing systemic vision, or claims of having such a vision – is it that of the state or of private entrepreneurs? Despite Karl Mannheim's fair conclusion that all social positions are ideological, i.e., partial, even though they claim to express a universal interest, the question remains as to what interests the state and entrepreneurs have, and who contributes to the greater efficiency of an undertaking. The opposition between private economic interests and state interests posited as a public good is a leading one in the definition of infrastructure. According to Reimut Jochimsen, infrastructure is "the sum of material, institutional and personal facilities and data which are available to the economic agents and which contribute to [...] complete integration and maximum level of economic activities."⁷ Conversely, for

⁷ Reimut Jochimsen, *Theorie der Infrastruktur: Grundlagen der marktwirtschaftlichen Entwicklung* (Tübingen: Mohr, 1966), 100.

Dirk van Laak, infrastructure is a visible, material mediator of the common good, positioned in between domination and everyday life, while being part of both.⁸ From this point of view, infrastructure is associated with the public interest of the state, as constructed by each state. The economic point of view links infrastructure with an increase in the efficiency of economic activity, and with a particular private interest. The dilemma of whom does infrastructure “serve” – a state-constructed public interest or, conversely, private interests and the wellbeing of particular groups – is of key importance in the study of infrastructure. Those interests differ across countries and in different historical situations, and they have different social implications. For example, the state interest may focus on building infrastructure for military purposes for national unification, but it may also tolerate certain regions and groups more than others. Private interests, if they are entrepreneurial and commercial, will be expansionist and will look for external horizons; they will (probably) have a stronger cumulative effect insofar as they will demand the building of institutions that support their interests being realized, etc. It is accepted that the development of the Russian Empire followed the path of a “strong arm” of centralized state power.⁹ The hypothesis I will test in this article is whether the mentioned opposition between private and state interests is artificial, in the researched case, because the successful development of transport infrastructure resulted from a complex intertwining of both types of interests.

As far as I am aware, the question of the relationship between state imperial interests and the economic interests of entrepreneurs, merchants, and shareholders in ROPiT has not been analyzed in-depth from the point of view of the construction of maritime infrastructures in Odessa. ROPiT is the subject of several important texts of the late nineteenth and early twentieth centuries¹⁰ as well as of recent times,¹¹ but these texts describe mostly the chronology of its foundation and the development and lives of the persons involved in this enterprise. Still, Baryshnikov’s text deals in part with the issue of the conflict between imperial and private interests.

⁸ Laak, *Imperiale Infrastruktur*.

⁹ David Lieven, *Towards the Flame: Empire, War and the End of Tzarist Russia* (London: Penguin, 2015); Victor Taki, *Tsar and Sultan* (London: I.B. Tauris, 2016).

¹⁰ For example, S.I. Ilovajskij, *Istoričeskii očerk piatidesiatiletiia Russkogo obščestva parochodstva i torgovli* (Historical sketch on the fiftieth anniversary of the Russian Steam Navigation and Trading Company) (Odessa, 1907); A. I. Denisov, *General-adiutant, admiral, Nikolaj Andreevič Arkas (biografičeskij očerk)* (Sevastopol: Tipografija D.O. Karčenko, 1887).

¹¹ M. Baryšnikov, “Russkoe obščestvo parochodstva i torgovli: učreždenie, funkcionirovanie, perspektivy razvitija (1856–1864 g.),” *Terra Economicus* 13, no. 2, (2015).

In light of the above, this article seeks to answer the following research questions:

How did the foundation and development of the Russian Steam Navigation and Trading Company become possible – in terms of context and initiators?

What were the biographies of the two key actors, Nikolaj Arkas and Nikolaj Novosel'skij, the founders and first directors of ROPiT, in terms of the resources they had at their disposal, i.e., mobility, networks, and knowledge? Can they be defined as systemic actors and transcultural mediators?

What strategies for developing maritime infrastructure did the entrepreneurs and the representatives of the state have, and what was the relationship between state and private interests?

What were the obstacles to and consequences of the establishment of ROPiT for the construction of maritime infrastructure in the period under study?

2. The social context of 1856

According to Article 11 of the Treaty of Paris of 30 March 1856, which ended the Crimean War (1853–1856), the Black Sea was “neutralized,” i.e., the countries that lined its coasts were prohibited from maintaining a naval fleet. This article of the treaty, however, placed the Russian Empire at a disadvantage in relation to the Ottoman Empire, since the latter was able to keep its naval forces in the Aegean and in the Mediterranean and, if need be, to urgently transfer them to the Black Sea via the Straits. Deprived of such a possibility, the authorities in Russia accelerated and facilitated the creation of the Russian Steam Navigation and Trading Company as an organization that developed maritime trade and passenger shipping. However, it also had a hidden military agenda. As early as in January 1856, before the signing of the Treaty of Paris, the Grand Duke Konstantin Nikolaevič wrote a report to his brother, Tsar Alexander II, in which he insisted on the establishment of a joint-stock private company that would purchase a large number of big steamships that, “when necessary, the government will rent or buy to transport troops, or convert to battleships.”¹²

¹² RGIA, f. 107, op. 1, d. 14, l. 1.

The hidden purpose of creating such a company was that, in the event of war, its port resources, infrastructure, and relatively fast ships would be able to execute military tasks. The imperial authorities regarded the establishment of ROPiT as a preliminary step toward restoring (if need be) the Black Sea naval fleet. This is not to say that they did not recognize the economic importance of maritime transport for Russia. Along with this importance, however, the expansion of Russia's influence and presence in the maritime territories to the south of the empire was declared as a "moral purpose" of the company. This is clearly seen in a note from Grand Duke Konstantin Nikolaevič again to the Committee of Ministers regarding the benefits of establishing such a company:

It will be very beneficial for the development of our maritime trade by transporting goods on Russian ships, but also for [maintaining] constant contacts with different points of the Orthodox Christian East and transporting a large number of pilgrims to Palestine and Mount Athos, thus helping us to become much closer to our co-religionists and contributing to the increase of Russia's importance in the East.¹³

Behind this geopolitical strategy, formulated in moral terms, one can undoubtedly also read the empire's future political intentions. Thus, due to the specific circumstances, ROPiT became a mediator of military and economic policies. Understandably, ROPiT's military purposes were hidden, and the aim was to legitimize the company as an institution of private entrepreneurs (merchants, bankers, and producers). In the initial discussions of the proposal for establishing the company (Committee of Ministers meeting, 24 April 1856), it was expressly noted that such large-scale enterprises could not function without the help of the state. Eventually, the idea prevailed that this enterprise should be legitimated distinctly as a "movement of own capital" and a "domestic resource of national wealth."¹⁴ The private steam navigation company was incorporated on 17 May 1856; on 3 August, Emperor Alexander II signed a decree formally endorsing the company and its Articles of Association. Article 1 of the latter stated that ROPiT was incorporated "for the development of trade in Russia's southern region and for the development of shipping, commercial, and postal links of this region with Russian and

¹³ RGIA, f. 107, op. 1, d. 14, l. 3.

¹⁴ Ilovajskij, *Istoričeskij očerk*, 6.

foreign ports.”¹⁵ Its operation was to be financed by a joint-stock company co-owned by the state and private actors, thereby ensuring that its general political objectives and strategies would be compatible with the commercially motivated goals of private merchants, owners, and entrepreneurs. This is why the company’s governance should be divided between representatives of the state and of entrepreneurs. The empire’s hidden military-political interests determined the initial allotment of ROPiT’s authorized share capital. Upon the incorporation of the company, the agreed ratio of state-owned and private shareholdings undoubtedly favored the former. The government held the largest stake, as it had invested 2.1 million rubles in 20,000 shares, which represented one-third of the company’s total equity of six million rubles.¹⁶ The state’s majority share in the company was justified expressly in the Articles of Association by a desire to inspire greater confidence in shareholders. Nor was it accidental that the Articles of Association stated expressly that ROPiT would be under the special patronage of the emperor, and that an additional holding of 1,550 shares was allotted to members of the imperial family.

As regards economic issues, the government was obligated to support the company’s initial activities by granting annual subsidies for shipping along the specified maritime routes (per nautical mile sailed), for purchase of the necessary vessels as well as for exemption of the duties on ships purchased abroad. Regular state subsidies for ship repair were also provided for a period of 20 years. To begin with, the state subsidies were planned to cover the costs of purchasing and operating 21 steamships on eight maritime routes, including both domestic routes and routes to foreign destinations.

3. The founders of ROPiT as systemic actors

ROPiT was established by two emblematic figures, Captain First Class Nikolaj Arkas, and the entrepreneur and state counselor Nikolaj Novosel’skij, who became its first directors from 1856 to 1861.

¹⁵ *Polnoe sobranie zakonov Rossijskoj Imperii. Sobranie vtoroe. Tom 31. Otdelenie 1* (Complete collection of the laws of the Russian Empire. Collection 2. Volume 31. Section 1), www.runivers.ru.

¹⁶ RGIA, f. 107, op. 1, d. 2, l. 21-23.

A representative of Russia's imperial interests: Nikolaj Arkas (1816–1881)

I will not present in detail the remarkable life of Nikolaj Arkas, the cofounder of ROPiT. I will focus on his activities and contacts, which determined his significant role in establishing the company.

Knowledge transfer and intercultural mediation

Arkas was only 11 years old when he started sailing. Apart from studying briefly at a nautical school, his training was mostly on the job, on three-month-long training voyages along the Caucasian coast, during which he acquired military and technical expertise in navigating seagoing vessels, as well as thorough skills in reading sea and river maps, and knowledge of the reefs, shallows, and other navigational hazards.¹⁷ Later, he sailed on several voyages in the Black Sea and the Mediterranean to Greece and Italy, during which he honed his military skills and also his skills in steering tall ships amid the numerous Greek islands. As a result of those voyages, he wrote an article published in *Morskoj sbornik* (Naval Collection), "Turetskij, grečeskij i neapolitanskij floty v 1852 godu" (The Turkish, Greek, and Neapolitan fleets in 1852).¹⁸ Arkas was fluent in several languages. Born to a prominent noble family of Greek descent, he knew ancient Greek, modern Greek, and French. During his Mediterranean voyages he also studied English because of the numerous "English works on navigation and technical subjects."¹⁹ He acquired personnel-management experience, too, as commander of the crews of various naval vessels. In addition to his military-technical competencies, he had experience in navigating ships. In 1848 the emperor appointed him commander of the naval frigate *Vladimir*, which was under construction in Britain, and he personally supervised its completion and armament.

Arkas's life story shows that he did not merely acquire extensive knowledge in different fields and from different countries, but also applied it in his work. He operated as a transcultural mediator.

¹⁷ A. I. Denisov, *General-adiutant, admiral Nikolaj Andreevič Arkas (biografičeskij očerk)* (Sevastopol: Tipografija D.O. Karčenko, 1887), 4.

¹⁸ Nikolaj Andreevič Arkas, "Turetskij, grečeskij i neapolitanskij floty v 1852 godu" (The Turkish, Greek and Neapolitan fleets in 1852), *Morskoj sbornik* (Naval Collection), 1853.

¹⁹ Denisov, *Arkas*, 20.

Networks – contact with royalty

The aspects that contributed to Arkas's successful career did not just include his acquired cultural capital, but also his social capital – his contacts and relationships with high-ranking persons. His noble descent undoubtedly helped him build such a network. But it was only one of several factors in his success. Arkas was only 15 years old when he was awarded a gold medal for service by the Ottoman sultan himself. His stay in Greece, Constantinople, and Italy under the patronage of the Russian government and with the support of the Russian ambassadors also helped him establish important contacts. His biographer, A. I. Denisov, mentions the royal balls in Piraeus that he attended at the invitation of the wife of the Greek King Otto. During his stay in Livorno, Arkas welcomed the brother of Napoleon I, Jérôme Bonaparte, on board his corvette.²⁰ In 1851 and 1852, as commander of the flagship of the Russian Empire, the *Vladimir*, Arkas accompanied members of the imperial family and the Grand Duke Konstantin Nikolaevič on their voyages and visits across the Mediterranean and Adriatic seas. Gradually winning Konstantin's full trust, Arkas was able to influence his decisions – for example, upon the elaboration of the new nautical manual. Thus, in addition to his many other qualities, Arkas's close contacts with members of the Imperial Court turned into another advantage that led to his appointment as director of ROPiT.

The systemic actor

Practical and personnel-management experience, versatile and state-of-the-art knowledge, and contacts with influential military and political figures (in Russia and abroad) endowed Nikolaj Arkas with a complex array of qualities characteristic of systems-thinking. These are Historical actors as individuals whose expertise encompassed all systemically interconnected aspects of an undertaking.

An amazing example of such system-creating activity was demonstrated by Arkas in 1844.²¹ He was summoned to St. Petersburg by Aleksandr Menšikov, Chief of Naval Staff, and tasked with helping to strengthen the Caspian Sea fleet. To this end, 12 naval vessels had to be delivered to the port of Astrakhan on the Caspian Sea in order to transport and assemble three iron steamships (two built in Britain and one in the Netherlands). Transporting such vessels by land to the north of the

²⁰ Ibid.

²¹ The story is presented in Denisov, *Arkas*, 40–41.

Caucasus from the Black Sea to the inland Caspian Sea was unthinkable because of the lack of roads. The only possible way to transport the vessels was along the Mariinsk Canal System (the Volga-Baltic Waterway) that links the Neva River estuary at St. Petersburg to the Volga River delta at the Caspian Sea via a series of canals, rivers, and lakes. The scope and complexity of the transportation project that Nikolaj Arkas carried out are remarkable. He collected data about the entire waterway from the Department of Hydrogeography, researched the resources of every settlement, and also gained information from local helmsmen and owners of vessels about the specific characteristics of the local waterways and also the state of the auxiliary roads by the rivers and canals, along which horses and men (the "burlaks") hauled barges and other vessels upstream. Arkas also completed the accounting work such as calculating the payments due to local workers and foreign engineers. The transportation, under Arkas's direction, of the iron steamships along the Russian rivers and lakes became an attraction for the local population as well as an opportunity to popularize the advantages of modern Western steamships and to inform local shipowners of how to purchase such vessels. Arkas's inexhaustible energy did not cease upon delivering the steamships to Astrakhan. Because of a lack of ship-repair enterprises there, he quickly organized the establishment of a workshop to assemble the steamships and, upon returning to St. Petersburg, submitted an evaluation of the project to his chiefs, amid a need for much more radical future projects that ought to be implemented with government help.

It is precisely here that one can discern the idea - accepted by the ROPiT management - that the development of transportation infrastructures could not be completed in a piecemeal and partial way. However, expanding water transport and networks to attain a general economic effect and develop the Russian economy, proclaimed as the prime objective, was perceived as impossible to achieve solely through the purchase or construction of a new, more modern type of steamship. In his report to the Chief of Naval Staff in March 1846, Arkas expressly underlined that, in addition to the procurement of ships, maritime shipping would be of true military and commercial benefit if the necessary reconstructions of the Caspian Sea ports were carried out; if easy transport links to them (railways or, in the case in point, equipment to deepen the Volga fairway) were developed further; if the availability of ship resources was bound to the local industry and natural resources (as regards the Caspian Sea, Arkas proposed concrete measures to develop fishing). Arkas

also noted the contradiction between local economic development and the outdated norms of ownership in the Russian Empire.²²

Arkas's wide-ranging vision, his recognition of the complexity of the measures and actions in managing large-scale state undertakings, and his remarkable knowledge and contacts with the royal family led Alexander II to choose him as the representative of imperial interests in the newly founded ROPiT. He had two main functions: Purchasing new ships from abroad and, as a military officer heading the central office of ROPiT in St. Petersburg, mediating between ROPiT's activities and the empire's strategic military objectives. In this capacity, Arkas was also the representative of the Maritime Ministry in the company.

The day-to-day operation of the company in Odessa and the development of Black Sea shipping was done mostly under the direction of Nikolaj Novosel'skij, who was the other co-founder of ROPiT and chosen as a director from the entrepreneurs.

Nikolaj Novosel'skij: The defender of entrepreneurial interests (1818–1898)

Marriage as a path to network- and career-building

Nikolaj Novosel'skij²³ graduated from Kharkov University with a PhD in Philosophy and went on to work as a civil servant. After he was noticed by Senator Ivan Vacenko, who invited him to become his assistant, Novosel'skij moved to St. Petersburg, where he lodged at Vacenko's home. He thus began his fast-rising career in the civil service, which sped up after he married the senator's daughter. Thanks to his marriage and his father-in-law's patronage, Novosel'skij became a state counselor, a position that gave him access to the elite.²⁴ Interestingly, after he lost his first wife (it is not clear whether they divorced or she died), he married another daughter

²² Ibid., 41.

²³ I have reconstructed the life of Novosel'skij mainly from the articles by Stanislav Calik, "Transportnyj magnat Rossijskoj Imperii Nikolaj Novosel'skij" (The Russian Empire's transport magnate, Nikolaj Novosel'skij) (<https://ros-vos.net/history/ropit/3/1/>) and D.A. Stepanov, "Učreždenie Russkogo obščestva parohodstva i trgovli (1856-1857 gody)" (The establishment of the Russian Steam Navigation and Trading Company (1856–1857)), *Vestnik Čeliabinskogo gosudarstvennogo universiteta* (Bulletin of Cheliabinsk State University) 237, no. 22, *Istorija, vyp. 46* (History Series, issue 46) (2011): 30–38 (<http://cyberleninka.ru/article/n/uchrezhdenie-russkogo-obschestva-parohodstva-i-torgovli-1856-1857-gody#ixzz3xQixaIvs>).

²⁴ Calik, "Transportnyi magnat."

of a senator – Pavel Degai, who as a state secretary and director of a Ministry of Justice department, was very influential. According to Calik:

It was precisely thanks to the efforts of his second father-in-law that Novosel'skij rapidly expanded his transport empire and took control over the Caspian Sea, merging the Kavkaz Steam Navigation Company with the Merkurij and Rusalka river companies which operated on the Volga. He became director of the newly established company called 'Caucase et Mercure.'²⁵

Thus, Novosel'skij's marriages provided him with contacts that he used to realize his business interests. But it was not only Novosel'skij's marriages that led to his remarkable success as an entrepreneur. His philosophical education supported his practical endeavors by cultivating the ability – typical for a philosopher – to think holistically and to link the solution to certain problems with the solution to others.

As noted by his friend from his student years, the marine artist Alexej Bogoljubov, Novosel'skij surprised his colleagues with his extraordinary thinking and “speculative mind.”²⁶ His systematic thinking was complemented by initiative and innovations: “Novosel'skij's whole life – witnesses of his life commented – was an eternal leap of obstacles. He carried out many projects at his own expense, even pledging his property, despite the existing great risks.”²⁷ On the one hand, Novosel'skij shared “the ideas of Western political economy about free competition and the government's noninterference in the economic life of its subjects.”²⁸ On the other hand, he realized that large infrastructure projects could not be implemented without state aid and control either. He therefore offered an intermediate solution – a state guarantee for large-scale projects, and private bank lending to entrepreneurs, especially in the construction of roads, improvements to ports, etc. “Then – Novosel'skij emphasized – private entrepreneurs should be allowed to carry out these useful deeds for the country and the repayment of the credits should be realized from the funds, contributed by the persons, using the services of this infrastructure.”²⁹ In this context, Novosel'skij's useful acquaintances and

²⁵ Ibid.

²⁶ Nynešnim “otcam” Odessy est' s kogo brat' primer. (The current “fathers” of Odessa have someone to follow) <https://on.od.ua> 2019/01/29

²⁷ Sergej Rešetov, Larisa Ižik Rešetov, Sergej, Larisa Ižik, *O dome gorodskogo golovy Odessy N.A. Novosel'skogo* (About the house of the mayor of Odessa N.A. Novoselsky), https://www.odessitclub.org/publications/almanac/alm_54/alm_54-68-80.pdf : 70.

²⁸ Nikolaj Novosel'skij, *Social'nye voprosy v Rossii* (St. Petersburg, 1881), 14.

²⁹ Ibid., 29.

two marriages only facilitated his future successful entrepreneurial activity.

His business interests also motivated him to carry out works that can be defined as a public good both for Russia and Odessa.

The systemic actor

The systemic approach of Nikolaj Arkas related to Russia's future and the achievement of geopolitical superiority, while that of Novosel'skij, as managing director of ROPiT in Odessa, was bound in a pragmatic way to the concrete development of the Odessa region and to securing personal gains from its development. Whereas Nikolaj Arkas was the representative of state-military management in ROPiT's affairs, Novosel'skij represented the interests of Russian entrepreneurs and businesspeople. This mutual complementarity was a source both of potential conflict and of positive resources for the development of Black Sea shipping and trade.

I will mention only some of Nikolaj Novosel'skij's undertakings not just as commercial director of ROPiT but also as mayor of Odessa (1867–1877). Guided by the idea that the successful operation of the maritime merchant fleet was impossible without coordination with local land and river transport, which also ensured the sustainability and regularity of cargo and passenger traffic on the Black Sea, in 1858 Novosel'skij initiated the merger of the Kavkaz Steam Navigation Company (which operated on the Caspian Sea) with two shipping companies operating on the Volga. His was the idea that it was necessary to connect water transport with rail transport, which would ensure fast access of goods and people from the coast to inland Russia and vice versa.³⁰ Novosel'skij realized that in order to develop ROPiT, it was necessary not only to have ships but also to reconstruct and, above all, to develop the existing ports. The enterprising director understood the cumulative principles behind developing transport networks. To intensify international maritime trade, big, deepwater ships were required, as well as ports deep enough to accommodate them. Frustrated by the lack of credit institutions that could finance such a burgeoning economic activity, Novosel'skij organized the establishment of the Odessa Credit Company in 1871.³¹ As mayor of Odessa, he also established schools to train the personnel needed for the development of shipping, trade, banking, and insurance. To facilitate the flow of passengers from inland Russia to Odessa, Nikolaj Novosel'skij

³⁰ Calik, "Transportnyi magnat."

³¹ Stepanov, "Učreždenie."

bought out the state's assets of the unfinished Odessa Railway and completed it.³² Apart from projects directly related to maritime trade, he was also aware of the need to create a well-developed social and urban infrastructure. As mayor, he built (on private shareholder capital once again) the Dniester–Odessa water conduit and a sewerage system in the city.³³ He contracted a 25-year lease (with the permission of the Odessa City Duma) for the Chadžibej and Kujal'nik estuaries, albeit with a clear personal-profit motive, in order to exploit them for profitable extraction of salt and as spas for affluent people. In fact, the connection between this activity and ROPiT lay in the development of tourism in Crimea and its environs for a relatively large (by then) part of the affluent population of Odessa and the rest of Russia. In the following years (especially during his term in office as mayor) Novosel'skij was involved in virtually all infrastructural spheres that were developed or established in the region. In a sense, if we look at all projects implemented with Novosel'skij's participation – those in the sectors of shipping, ports, shops, and client services, the medical, social, and transport infrastructure of Odessa, as well as banking, education, and public utilities – we see a very vivid example of systemic thinking and activity.

4. State goals and private interests meet the challenges of the environment

Under these two modern-thinking and visionary first directors of ROPiT, the joint-stock company got off to a flying start. The modern European experience in implementing large-scale infrastructure and transport projects, such as those that ROPiT members were keen to develop, confirms a clear principle. Infrastructure operations at each microlevel already presuppose a macrolevel framework directed by more fundamental types of institution such as the state. Thus, ROPiT's actions as regards the rapid development of shipping on the Black Sea turned out to depend on what the Russian imperial center had planned in this regard, as well as on the overall development of the social environment.

Steamships and personnel

The first obstacle before ROPiT's enterprising directors was the almost complete lack of maritime vessels. In the first statistical report on ROPiT's activities, Apollon Skal'kovskij found that in the early 1850s “regardless of all the sacrifices and efforts of the government, it owned

³² Ibid.

³³ Ibid.

only 12 steamships of 1,900 hp boiler power, which serviced two international routes (to Constantinople and Galați) and four domestic routes."³⁴ The first task of ROPiT was to purchase steamships. By April 1857, ROPiT had bought five passenger and cargo ships from Britain.³⁵ By the end of 1857, the company had already accumulated 17 vessels, which allowed it to operate not only on Russia's Black Sea and Azov territorial waters but also to launch an international line: Odessa–Constantinople–Marseilles.³⁶ ROPiT continued to purchase iron steamships not just from Britain but also from France in the following years.

In addition to vessels, ROPiT needed qualified experts in all areas. Long after 1856, it still suffered from a shortage of personnel: Engineers, helmsmen, technicians, and sailors. The problem was not resolved until 1898. The understanding that the training of seamen would be most efficient if completed on board ROPiT's ships ultimately led to the opening of the commercial shipping classes at the Trade School in Odessa on 1 July 1898. Thus, the necessary education infrastructure was added to ROPiT's transport infrastructure.

But the major practical challenge before ROPiT was that of linking the maritime infrastructure to the Russian Empire's overall transport infrastructure.

Infrastructural connections, shipment routes, and the logic of profit

The systemically thinking directors of ROPiT viewed international commercial shipping not only as an opportunity for supplying goods to the Russian market, but also as a chance to develop the inland regions. In this vein, N. Sokol'skij wrote in *Odesskij vestnik* (the Odessa Gazette): "One cannot presume that our region will long continue to exist as a simple and natural economy without industrial activity and the inflow of capital."³⁷ The development of foreign trade was conceived of as a multilateral activity with both outward- and inward-oriented goals. In a process of mutual complementarity, commercial shipping was thought of as a resource for the Russian economy whose development, in turn, should lead to an increase in the wellbeing of the local population. For ROPiT's members, this increase would additionally intensify trade because of the increased Russian industrial output and also the population's

³⁴ Apollon Skal'kovskij, *Russkoe Obščestvo parochodstva i torgooli, 1857–1869* (The Russian Steam Navigation and Trading Company, 1857–1869), (Odessa, 1870), 15.

³⁵ Ilovajskij, *Istoričeskij očerk*, 28.

³⁶ *Ibid.*, 30.

³⁷ *Odesskij vestnik* 59 (1857): 294.

opportunities to buy imported goods and travel. This is precisely why the ROPiT management linked “outbound transport,” i.e., the expansion of maritime trade, to “inbound transport,” i.e., the development of land transport infrastructures (mainly railroads). Furthermore, connecting the Black Sea coast to inland areas by railroad was regarded as the most important element in opening up this region to the rest of the world. One may say that the Black Sea revealed its potential for improving public wellbeing only through being better connected to inland areas by land. The Baltic Sea region’s prosperity, a result of “the railroads near our western border,” was highlighted as a case contrary to the situation in the Black Sea region.³⁸ In the same sense, the conclusion was drawn that, “regrettably, until now the Black Sea has been too far from these international transport networks that contribute to wellbeing.”³⁹ In other words, the Black Sea region was a forgotten, natural and undeveloped social territory that was closed to the outside world precisely because of the lack of transport links to the inland areas.

Here, the interests of the ROPiT shareholders did not coincide with those of the state. Although the central government had declared support for maritime shipping, it gave priority to the development of rail transport inland, and refused to link these railroads with the Black Sea region. There were several reasons for this: The inland transport network was regarded as a factor constituting state national unity, this railway system was more susceptible to government regulation and control, and there were some economic reasons too. As early as 1856, during a discussion of the draft Statute of ROPiT, the Minister of Finance P.F. Brock emphasized the financial disadvantage to exporting Russian goods by sea: “Since our export goods consist almost exclusively of raw materials transported entirely by sailing vessels, these exports could not be financially covered due to the high costs of using steamships.”⁴⁰

Furthermore, the fact that the Russian maritime trade would face strong competition from the already-established British, Austrian, and French shipping companies was also taken into consideration. The third argument stressed the unclear and risky situation on the shores of the Russian Black Sea coast and the Caucasus, immediately after the Crimean War. It concerned the fear of endangering the trade and passenger travels, thus making them unprofitable, between the ports of the Black and Azov

³⁸ *Odesskij vestnik* 5 (1856): 33.

³⁹ *Ibid.*, 34.

⁴⁰ Denisov, 1887: 13

Seas. The government therefore saw no point in developing maritime trade by building a railway to Odessa.

On the contrary, ROPiT-related interests required the construction of a railway to connect the Black Sea region, more concretely Odessa, with the inland areas. Despite the ROPiT management's multiple appeals to the government, the latter constantly postponed the construction of railroads that linked inland areas with the coast and Odessa. Besides this, ROPiT's plans were for the complete – not partial – linking of the port of Odessa to inland Russia by rail. The required railway routes had to provide easy access by land to all resources necessary for efficient maritime trade. They had to ensure cheap and fast delivery of grain from the fertile rural regions, in order to guarantee the transport of people migrating to the prospering coastal centers, to supply coal from the Donetsk basin for the ships and, if need be, to provide an alternative to the sea routes between ports. As ROPiT became increasingly autonomous and expanded its operations, the company ultimately took matters into its own hands. In the summer of 1870 the company purchased the Odessa–Balta and Odessa–Elisavetgrad lines from the government, and later, the stretch from Tiraspol to Kishinev, and it built the 963-kilometers-long Odessa Railway Line. In this way, ROPiT built the infrastructure that the government had refused to build, and it established a transport center that rivaled that of Volga–Don.

To the topic of the connectedness of transport infrastructure we must also add the corrections that ROPiT imposed on the ships' destinations that had been initially agreed with the government. Two significant changes were made from "below," i.e., by the shareholders. First, ROPiT's shipping routes were specified in its Articles of Association. The government gave priority to the domestic sea lines that linked Odessa with Crimea, the Sea of Azov, the Caucasian coast, and the large Russian rivers. Irrespective of these priorities, however, the logic of private economic interests increasingly drove the ROPiT management toward an expansive development of commercial shipping to international and ever more distant destinations. The divergence of state and private interests in this case is explicable once again as a variant of the conflict between military-political and economic goals. In perceiving ROPiT's resources as a reserve for the future military, and above all, for naval defense operations (the defense of coasts, the deployment of military units, and the transport of ammunition and troops to various Russian cities), the government had insisted that the shipping routes be along Russia's coasts. ROPiT's steamships were referred to as "floating defense" since, according to the central government's intents, they had to serve as a sort of shield, as a

mobile southern border of the empire. Precisely this, however, ran counter to the economic logic of the company's operations, which reflected modern expansionist tendencies and the striving toward eliminating international borders in general. The logic of the economic actors was profit-oriented and international, while the military-political logic of the state was regional.

The founders of ROPiT declared repeatedly the need for the broadest possible diversification of Russian exports based on the principle of "goods of all sorts." The poorly industrialized Russian Empire, however, was incapable of pursuing such a strategy. Until the end of the nineteenth century, it exported mostly primary farm products – grain, wool, skins, animal fat, etc. ROPiT's modernization projects led to an increase chiefly in wheat exports. The comparative tables of I.M. Kulišer, a historian of Russian trade, show that while the range of exported goods remained relatively the same as in the previous decades, at the end of the nineteenth century wheat exports grew dramatically. Whereas at the beginning of the nineteenth century wheat accounted for 18 percent of Russia's total exports, by the end of the century it had become the top export item, with a share of 40 percent.⁴¹ Russia's limited capacity to diversify exports against the background of Russian industry's ever growing need for European raw materials and machines, as well as the fact that grain exports were not guaranteed because of the possibility of poor crops, lay at the base of ROPiT's constant efforts to rationalize its activities so as to increase its profits. Instead of the previous cheaper primary farm products, such as skins or animal fat, there was an increase in the share of more expensive goods such as timber (which made up ten percent of total exports at the end of the nineteenth century), butter, and eggs.

The limited range of exported goods was offset by the launch of new maritime lines and the intensive operation of the most profitable ones. In a sense, profits turned out to be linked to the distancing of ROPiT's ships from Odessa. In 1857, the largest amount of goods (487,907 pounds) was shipped to Constantinople. At the beginning of the 1860s, however, shipments to Britain accounted for the largest share of ROPiT's cargo. This largely contravened the mandatory routes agreed with the government. An ever growing share of the company's revenue came from long-distance destinations and especially the British line, which was not among those initially agreed with the government. In 1863, the British line yielded the

⁴¹ I.M. Kulišer, *Očerk istorii russkoj torgovli* (Essay on the history of Russian trade) (St. Petersburg: Atenej, 1923), 300.

highest revenue (345,000 rubles), followed by the Alexandria (206,000 rubles) and Constantinople (almost 100,000 rubles) lines. While the government originally intended it to operate primarily in Russian territorial waters for defense purposes, ROPiT increasingly expanded its range into international waters. At the end of 1864, the Shareholders' General Meeting argued that the company should "not limit itself to its obligations under the Articles of Association but should increase the number of voyages on particular routes that are most profitable."⁴² Driven by the profit motive, ROPiT implemented a series of measures such as streamlining its administration, downsizing excess staff, cutting operational costs, and optimizing the structure of the routes serviced. The company also increased the proportion of its noncommercial activities. With Novosel'skij's assistance, in 1863 ROPiT and the Russian Post Office Department signed a contract for postal services and transportation, under which the company transported mail not only within Russia and the Caucasus but also between Odessa and Constantinople. Mail transportation later turned out to be one of the company's most profitable activities.

The transportation of passengers gradually increased as well. After the practically minded Admiral Nikolaj Čičačëv was elected managing director of ROPiT (1862–1876), he prioritized as a corporate strategy the voyages and routes that had proven to be most effective and more profitable for the shareholders. As early as in 1864 the number of "optional" (but money-making) voyages increased rapidly at the expense of the "mandatory" destinations included in the Articles of Association and agreed with the central government. It is telling that when presented with ROPiT's successive annual report, the shareholders fully approved an almost 50 percent decrease in voyages to "mandatory" destinations.⁴³

After the war of 1877–1878, the ROPiT's activity became increasingly independent and concentrated on passenger and freight transport in international waters. Odessa became the center of the commercial and economic goals of shipping in the Black Sea, while Sevastopol and the region of Kerch and the Crimea became the center of the navy. The main tasks for the Russian Imperial Navy were to reequip it with modern, fast, and deep-sea steamers suited for carrying the latest military equipment. In this regard, the possibility of using the existing merchant and passenger ships of ROPiT for military purposes was questioned. An article on armored warships in the *Morskoj sbornik* (Naval Collection) journal

⁴² RGIA, f. 107, op. 1, d. 240. l. 74–75.

⁴³ RGIA, f. 107, op. 1, d. 226, l. 60–61.

explicitly stated that “the use of ‘merchant ships for military purposes was never met with much sympathy among the navy.”⁴⁴ Warships were required to have “greater speed, depth, protection of inhabited parts and good maneuverability,”⁴⁵ – features that were lacking in merchant vessels.

This technically substantiated difference between commercial and military vessels was definitely important, but no less important was the growing economic autonomy of ROPiT’s activity. One of its executive directors, Admiral Nikolaj Čičačëv, despite the predominantly military positions he held, realized the inevitability of the mismatch dictated by the economic expansion of ROPiT with the original military plan of its creation. He declared: “The state is not able to find in the merchant steamers an inexhaustible source for its military armament and for counteraction to a naval war.”⁴⁶ Thus, the commercial activity of ROPiT was gradually freed from its inherent military-political goals. Proof of this lies in the fact that despite Russia’s numerous wars with Turkey, after the last war from 1877–1878, it was trade with the Ottoman Empire that occupied the most important place in ROPiT’s activities.⁴⁷

All those processes demonstrated a growing autonomy in ROPiT’s operations as well as a gradual shift away from their military purposes and turn toward commercial interests. At the end of the nineteenth century, this drove the government to tacitly relinquish control over the company’s operations, which left them entirely up to the enterprising shareholders.

Sea and rivers

At the end of November 1859, the ROPiT Shareholders’ General Meeting discussed ship traffic on the inland rivers, and especially on the Dnieper. They noted that shipping on that river was negligible compared with the traffic on the Volga. This directly affected the shareholders’ profits because grain produced in the lands to the north made up the bulk of exports from the port of Odessa. Since there was no river transport, grain was transported to the south in a primitive way by the “*čumaki*,” local workers and stevedores who brought stocks by large ox-drawn wooden carts. An article in *Odesskij vestnik* of 25 February 1860 noted that 500,000 people and more than 1,000,000 cattle a year were employed in this mode

⁴⁴ *Morskoj Sbornik* (Naval Collection) 12 (1869): 11.

⁴⁵ *Ibid.*, 13–14.

⁴⁶ RGAVMF, f. 410. Op. 2. D. 4103. L. 88.

⁴⁷ See Hayri Chapraz, *The Ottoman Empire and Russia in the Western Caucasus in the First Half of the 19th Century* (St. Petersburg, Kartlia: SPGU, 2004).

of transport. The shareholders found that this traditional mode of transporting grain for export to the Black Sea coast was extremely unprofitable and that transportation costs took up 20 to 50 percent of its commercial value. This was due to the slow speed of the carts, the frequent diseases that affected draft animals (the term *čumak* originated precisely from the word *čuma*, the Russian for plague, in this case, cattle plague), and the mishandled storage of cargoes that resulted in a deterioration in the quality of the wheat. The shareholders accepted that the transportation of the valuable grain had to be organized by the company itself because otherwise the profits from transportation “went solely into agriculture.”⁴⁸ Given all the benefits that would come from connecting maritime routes with railroads, this required paying attention to river shipping. The transportation of wheat to the coast by ROPiT’s ships and barges was praised in the newspaper as follows: “The timely delivery of grain products to the sea ports will lower their prices and the navigation company will thus be able to flood all Western Europe with them.”⁴⁹ Because of ROPiT’s declared commitment to the government’s military policy, the strategy for expanding river transport was justified also with the argument that, should the need arise, ROPiT’s ships would be able to transport troops and ammunition by river to the sea. In reality, however, such an activity (along the rivers to the north of Cherson and Nikolaevsk) was not provided. Thus, with flexible ad-hoc initiatives driven by direct profits, ROPiT found ways to circumvent the requirements of its agreement with the government. The measures it took to develop river shipping yielded a positive result. Haulage on the Dnieper and Bug rivers brought the company solid profits as early as in 1861 (179,000 rubles from shipments on the Dnieper and 65,500 rubles from shipments on the Bug).⁵⁰ ROPiT was even unable to fulfill all shipment orders because it did not have enough vessels. The above-quoted article in *Odesskij vestnik*, however, misinterpreted the strategy for developing river shipping in a national-patriotic sense: “It must be admitted that rail routes, despite their profitability, must yield primacy to river routes. In our fatherland rivers always have priority.”⁵¹ Indeed, in Russian culture, big rivers (especially the 3,531-km-long Volga) are a symbol of the unity and integrity of the Russian people, as a center of communication and intensive economic life. In reality, it was precisely ROPiT’s modern project for developing international trade on the Black Sea that transformed domestic river shipping into a significant resource and added modern economic

⁴⁸ *Odesskij vestnik* 21 (25 February 1860): 71.

⁴⁹ *Ibid.*, 72.

⁵⁰ *Ibid.*, 65.

⁵¹ *Ibid.*, 72.

meanings to the symbolism behind big rivers. ROPiT's initiatives affirmed an important principle of infrastructure development: The principle that the realization of large-scale macro-infrastructures produces, subordinates, and integrates into itself a series of macro-infrastructure projects. It was precisely the opening up of the Russian economy to the rest of the world with ROPiT's mediation that also boosted the development of domestic transport. This principle was confirmed also by other concrete undertakings of ROPiT. Labor-intensive and slow manual stevedoring was replaced with mechanical handling. To ensure that the voyages would proceed on schedule, it was necessary to eliminate the delayed or irregular arrival of export goods that the ships had to carry. To this end, one of ROPiT's first initiatives was to build a complex of warehouses at the port of Odessa. In addition, to hedge investments in shipping and steamships, ROPiT set up an insurance system for its shareholders as early as in 1857. Once again under Novosel'skij's auspices, a credit system necessary for seafaring was also developed in Odessa. To service the company's regular lines, branches, and offices were opened, and staff was hired abroad.

Coal

The ROPiT management's systemic way of thinking was demonstrated especially clearly in concrete and apparently very private spheres of activity. Coal mining in the Donetsk basin was one such example. First of all, the significance of coal mining in this basin was linked to domestic Russian consumption. Transporting coal from the mines to the southern Black Sea ports by river became a routine operation for ROPiT because of the significance of coal as a fuel for households, industry, and steamships. By analogy with the abovementioned examples, coal transportation led to new initiatives by the company. ROPiT built warehouses, dredged the harbors, and acquired barges and large-capacity cargo steamships. Nikolaj Arkas solicited from the government the right of shareholders to acquire their own coal mine in the Donetsk basin. It was presumed that this would reduce expenditure on the purchase of imported British coal. Thus, coal mining, as well as shipbuilding, became ROPiT's first purely industrial, not transport-related, undertaking. In 1857 the construction of the company's first coal pit commenced, on the bank of the Gruševka River.

The case of ROPiT's coal-mining project, however, shows another variant of the company's relationship with the state. So far, I have focused on the dormant conflicts and discrepancies between private economic and state military-political interests. In their light, the history of ROPiT can be

read as a history of the emancipation of economic from public actors on the territory of the Black Sea. In the case of coal mining, however, the situation was completely different. The government found this undertaking to be fully justified. The expansion of coal mining was expected to be useful in future military operations, as developing a national coal-mining industry would ensure the independence of the navy. Besides this, Donetsk coal was called “smoke-free” because it did not release the usual black smoke when burned in the boilers of steamships. This was considered an obvious advantage over the Ottoman Navy, since its ships could be recognized from afar by the huge puffs of black smoke. That is also why the coal-mining area in the Donetsk region was leased to ROPiT without any objections. The results, however, were problematic. It was not until 1870 that ROPiT began to mine coal.⁵² This delay was due to the lack of experience in this specific production sphere, the inappropriate use of funds, and embezzlement by the mine’s management. Another problem came from the fact that the coal seams in the leased area turned out to be very deep underground, but the company initially did not have the necessary mining equipment. Last but not least, the costs of coal mining and transportation to Odessa by river and railroad significantly exceeded those of buying coal from abroad. Even at the beginning of the twentieth century, the anthracite coal mined locally was used only partly by the fleet and Russia was still buying the cheaper British coal.

The case of coal mining shows, then, that the development processes in Russia in the nineteenth century (as illustrated by the history of ROPiT) were not unequivocally dependent on the degree of autonomization of the economy and trade from state geopolitical strategies. Freed from state patronage, most of ROPiT’s pragmatic projects did indeed lead to prosperity and development. In the case of coal mining, though, we see the exact opposite result: Inefficiency and even failure. Hence, imperial interests are not necessarily an antipode to private entrepreneurial interests. In a complex dialectic of interactions, the first can be a condition for, and an obstacle to, the second; but the lack of interaction between the two is also not a guarantee of success.

⁵² See Ilovajskij, *Istoričeskij očerk*, 321.

5. Conclusion

The construction of Russia's maritime infrastructure in the Black Sea region became possible because of the following factors:

First, the existence of systemic actors who had a comprehensive vision of the development not merely of maritime infrastructure but of infrastructure as a large technological system (cf. Hughes). The realization of this vision was possible for at least two reasons: The systemic actors were competent in different spheres as well as familiar with the experience of foreign countries; in this sense, they transferred knowledge and were transcultural mediators (Arkas). Second, securing a position of power that would allow them to realize their ideas required building a network of contacts with high-ranking persons both from the government and from the Imperial Court. This network was developed through personal achievements (Arkas) as well as marriage (Novosel'skij).

Second, the analysis of the case of the ROPiT shipping joint-stock company rejects the thesis that the development of the Russian Empire was sustained by "strong-handed" state intervention,⁵³ and shows that at least the development of transport infrastructure was a much more complex process, a result of the constant negotiation and confrontation of state and private entrepreneurial interests. This complex process enabled the cumulative development of infrastructure as a series of modern institutions due to the need for efficient operation of the already-built infrastructures.

⁵³ Lieven, *Towards the Flame; Taki, Tsar and Sultan*.

Bibliography

- Arkas, Nikolaj Andreevič. "Turetskij, grečeskij i neapolitanskij floty v 1852 godu" (The Turkish, Greek and Neapolitan fleets in 1852). *Morskoj sbornik* (Naval Collection), 1853.
- Baryšnikov, M. "Russkoe obščestvo parochodstva i trgovli: učreždenie, funkcionirovanie, perspektivy razvitija (1856–1864 g.)." *Terra Economicus* 13, no. 2, (2015): 106–130.
- Bourdieu, Pierre. "Ökonomisches Kapital, kulturelles Kapital, soziales Kapital." In *Soziale Ungleichheiten*, special issue 2 of *Soziale Welt*, ed. Reinhard Kreckel, 183–198. Göttingen: Schwartz, 1983.
- Calik, Stanislav. "Transportnyj magnat Rossijskoj Imperij Nikolaj Novosel'skij" (The Russian Empire's transport magnate, Nikolaj Novosel'skij). <https://ros-vos.net/history/ropit/3/1/>.
- Chapraz, Hayri. *The Ottoman Empire and Russia in the Western Caucasus in the First Half of the 19th Century*. St. Petersburg, Kartlia, SPGU, 2004.
- Denisov, A.I. *General-adiutant, admiral, Nikolaj Andreevič Arkas (biografičeskij očerk)*. Sevastopol: Tipografija D.O. Karčenko, 1887.
- Filipov, Iu. *Torgovoe moreplavanie* (Commercial navigation). St. Petersburg: 1905.
- Hughes, Thomas P. "The Evolution of Large Technological Systems." In *The Social Construction of Technological Systems*, ed. Wiebe E. Bijker, Thomas P. Hughes, and Trevor Pinch, 45–76. Cambridge, MA: MIT Press, 1987.
- Ilovajskij, S. I. *Istoričeskij očerk p'atidesiatiletija Russkogo obščestva parochodstva i trgovli* (Historical sketch on the fiftieth anniversary of the Russian Steam Navigation and Trading Company). Odessa, 1907.
- Jochimsen, Reimut. *Theorie der Infrastruktur: Grundlagen der marktwirtschaftlichen Entwicklung*. Tübingen: Mohr, 1966.
- Kulišer, I. M. *Očerk istorii russkoj trgovli* (Essay on the history of Russian trade). St. Petersburg: Atenej, 1923.

- Laak, Dirk van. *Imperiale Infrastruktur: Deutsche Planungen für eine Erschließung Afrikas 1880–1960*. Paderborn: Schöningh, 2004.
- Lieven, David. *Towards the Flame: Empire, War and the End of Tzarist Russia*. London: Penguin, 2015.
- Novosel'skij, Nikolaj. *Social'nye voprosy v Rossii*, St. Petersburg, 1881.
- Panter, Sarah, Johannes Paulmann, and Margit Szöllösi-Janze. "Mobility and Biography: Methodological Challenges and Perspectives." In *Mobility and Biography*. Jahrbuch für Europäische Geschichte/European History Yearbook 16, ed. Sarah Panter, 1–14. Berlin: De Gruyter Oldenbourg, 2015.
- Rešetov, Sergej, Larisa Ižik. *O dome gorodskogo golovy Odessy N.A. Novosel'skogo* (About the house of the mayor of Odessa N.A. Novoselsky). https://www.odessitclub.org/publications/almanac/alm_54/alm_54-68-80.pdf.
- Rohdewald, Stefan. "Mobilität/Migration: Herstellung transosmanischer Gesellschaften durch räumliche Bewegungen." In *Transottomanica – Osteuropäisch-osmanisch-persische Mobilitätsdynamiken: Perspektiven und Forschungsstand*, ed. Stefan Rohdewald, Stephan Conermann, and Albrecht Fuess, 59–82. Göttingen: V&R unipress, 2019.
- Rolf, Malte. "Einführung: Imperiale Biographien: Lebenswege imperialer Akteure in Groß- und Kolonialreichen (1850–1918)." *Geschichte und Gesellschaft* 40, no. 1 (2014): 5–21.
- Skal'kovskij, Apollon. *Russkoe Obščestvo parohodstva i torgovli, 1857–1869 g.* (The Russian Steam Navigation and Trading Company, 1857–1869). Odessa, 1870.
- Stepanov, D.A. "Učreždenie Russkogo obščestva parohodstva i torgovli (1856–1857 gody)" (The establishment of the Russian Steam Navigation and Trading Company (1856–1857)). *Vestnik Čeliabinskogo gosudarstvennogo universiteta* (Bulletin of Cheliabinsk State University) 237, no. 22, *Istorija, vyp. 46* (History Series, issue 46) (2011): 30–38. <http://cyberleninka.ru/article/n/uchrezhdenie-russkogo-obschestva-parohodstva-i-torgovli-1856-1857-gody#ixzz3xQixaIvs>.
- Taki, Victor. *Tsar and Sultan*. London, I.B. Tauris, 2016.