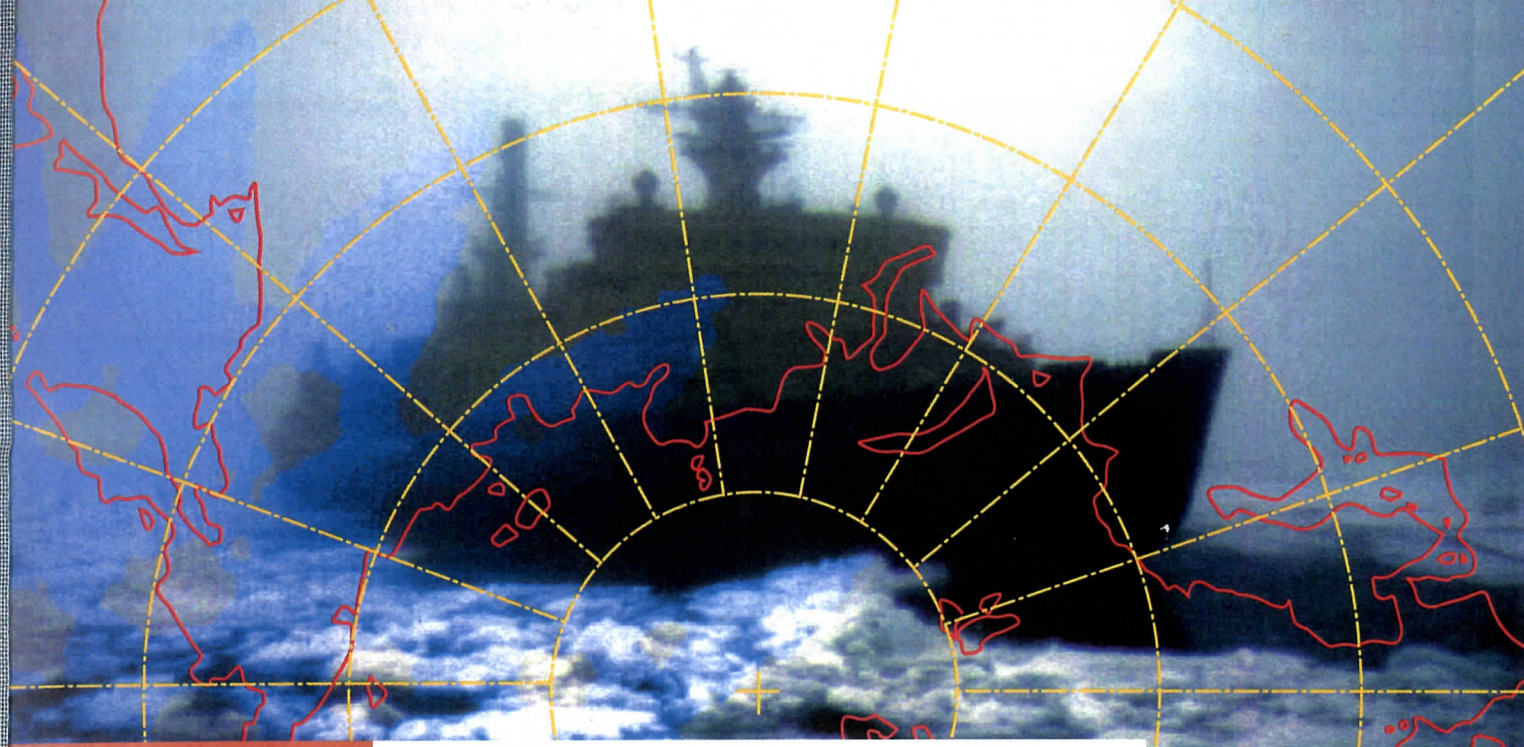
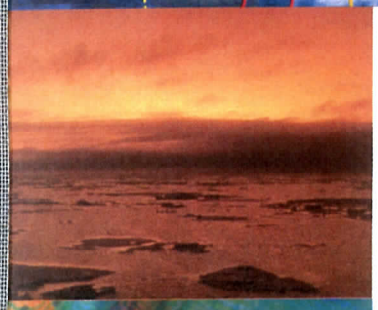




INSROP WORKING PAPER
NO. 61 - 1996, IV.1.1

Historical and Current Uses of the Northern Sea Route. Part III: The Period 1855-1917

Jens Petter Nielsen

INSROP International Northern Sea Route Programme

Central Marine Research & Design Institute, Russia

The Fridtjof Nansen Institute, Norway

Ship and Ocean Foundation, Japan

International Northern Sea Route Programme (INSROP)

Central Marine Research & Design Institute, Russia

The Fridtjof Nansen Institute, Norway

Ship & Ocean Foundation, Japan

INSROP WORKING PAPER NO. 61-1996

Sub-programme IV:	Political, Legal and Strategic Factors
Project IV.1.1:	Historical and Current Uses of the Northern Sea Route
Supervisor:	Jens Petter Nielsen
Title:	**Historical and Current Uses of the Northern Sea Route. Part III: The Period 1855-1917**
Author:	Jens Petter Nielsen
Address:	Institute of Social Sciences University of Tromsø 9037 Tromsø Norway
Date:	25 September 1996
Reviewed by:	Professor William Barr, Department of Geography, University of Saskatchewan, Canada.

What is an INSROP Working Paper and how to handle it:

This publication forms part of a Working Paper series from the **International Northern Sea Route Programme - INSROP**. This Working Paper has been evaluated by a reviewer and can be circulated for comments both within and outside the INSROP team, as well as be published in parallel by the researching institution. A Working Paper will in some cases be the final documentation of a technical part of a project, and it can also sometimes be published as part of a more comprehensive INSROP Report. For any comments, please contact the authors of this Working Paper.

FOREWORD - INSROP WORKING PAPER

INSROP is a five-year multidisciplinary and multilateral research programme, the main phase of which commenced in June 1993. The three principal cooperating partners are **Central Marine Research & Design Institute (CNIIMF)**, St. Petersburg, Russia; **Ship and Ocean Foundation (SOF)**, Tokyo, Japan; and **Fridtjof Nansen Institute (FNI)**, Lysaker, Norway. The INSROP Secretariat is shared between CNIIMF and FNI and is located at FNI.

INSROP is split into four main projects: 1) Natural Conditions and Ice Navigation; 2) Environmental Factors; 3) Trade and Commercial Shipping Aspects of the NSR; and 4) Political, Legal and Strategic Factors. The aim of INSROP is to build up a knowledge base adequate to provide a foundation for long-term planning and decision-making by state agencies as well as private companies etc., for purposes of promoting rational decisionmaking concerning the use of the Northern Sea Route for transit and regional development.

INSROP is a direct result of the normalization of the international situation and the Murmansk initiatives of the former Soviet Union in 1987, when the readiness of the USSR to open the NSR for international shipping was officially declared. The Murmansk Initiatives enabled the continuation, expansion and intensification of traditional collaboration between the states in the Arctic, including safety and efficiency of shipping. Russia, being the successor state to the USSR, supports the Murmansk Initiatives. The initiatives stimulated contact and cooperation between CNIIMF and FNI in 1988 and resulted in a pilot study of the NSR in 1991. In 1992 SOF entered INSROP as a third partner on an equal basis with CNIIMF and FNI.

The complete series of publications may be obtained from the Fridtjof Nansen Institute.

SPONSORS FOR INSROP

- Nippon Foundation/Ship & Ocean Foundation, Japan
- The government of the Russian Federation
- The Norwegian Research Council
- The Norwegian Ministry of Foreign Affairs
- The Norwegian Ministry of Industry and Energy
- The Norwegian Ministry of the Environment
- State Industry and Regional Development Fund, Norway
- Norsk Hydro
- Norwegian Federation of Shipowners
- Fridtjof Nansen Institute
- Kværner a.s.

PROFESSIONAL ORGANISATIONS PERMANENTLY ATTACHED TO INSROP

- Ship & Ocean Foundation, Japan
- Central Marine Research & Design Institute, Russia
- Fridtjof Nansen Institute, Norway
- National Institute of Polar Research, Japan
- Ship Research Institute, Japan
- Murmansk Shipping Company, Russia
- Northern Sea Route Administration, Russia
- Arctic & Antarctic Research Institute, Russia
- ARTEC, Norway
- Norwegian Polar Research Institute
- Norwegian School of Economics and Business Administration
- SINTEF (Foundation for Scientific and Industrial Research - Civil and Environmental Engineering), Norway.

PROGRAMME COORDINATORS

- **Yury Ivanov, CNIIMF**
  Kavalergardskaya Str.6
  St. Petersburg 193015, Russia
  Tel: 7 812 271 5633
  Fax: 7 812 274 3864
  Telex: 12 14 58 CNIMF SU
- **Willy Østreng, FNI**
  P.O. Box 326
  N-1324 Lysaker, Norway
  Tel: 47 67 11 19 00
  Fax: 47 67 11 19 10
  E-mail: sentralbord@fni.no
- **Ken-ichi Maruyama, SOF**
  Senpaku Shinko Building
  15-16 Toranomon 1-chome
  Minato-ku, Tokyo 105, Japan
  Tel: 81 3 3502 2371
  Fax: 81 3 3502 2033
  Telex: J 23704

HISTORICAL AND CURRENT USES OF THE NORTHERN SEA ROUTE

PART III: THE PERIOD 1855-1917

TABLE OF CONTENTS

PART THREE

Jens Petter Nielsen

3. THE PERIOD 1855-1917

3.1.1 In quest of a commercial waterway from Europe to Siberia

On the basis of part 1 and 2 it seems reasonable to conclude that up to the period of the Crimean War (1853-55) the Russian authorities were mainly occupied with charting the area of the Northern Sea Route in order to gain legal and political control over the Siberian Arctic region. To some extent the charting of natural and economic resources entered into the instructions for the expeditions, and the Russian government did take part in the economic development of certain local areas. But there were as yet no official plans for developing a through route along the coast, linking the areas of Northern Siberia with the European part of Russia or with Western Europe.

After Lieutenant A.K. Tsivolka's unsuccessful expedition to Novaya Zemlya in 1838-39 the Russian Government gave up any further attempts at charting the unexplored northern part of Novaya Zemlya (see part 2). On the basis of information brought back by Russian expeditions between the years 1821-1839 a sketch map of Novaya Zemlya was produced by the Hydrographical Department of the Naval Ministry in 1844. It was incomplete and contained many "blank spots". The legend of the impassability of the Kara Sea had indeed become firmly entrenched and Russian authorities were pessimistic about the prospects for advancing further to the east to explore the northern coast of Siberia from this direction in the not-too-distant future.

However, the 1850s saw the emergence of the first economic motivation for developing the Northern Sea Route, as the possibility of moving freight westwards along this route from the Ob and Yenisey was now being seriously considered.

The first initiatives in this direction came "from below" - i.e. from Siberian merchants and industrialists who wanted to find a new and cheaper way of exporting raw materials from Siberia to Western Europe. The Northern Sea Route seemed to be a logical economic outlet for the surplus production of these areas, since the Ob and Yenisey River systems, which provided water transport in the two vast regions of Western and Central Siberia empty themselves into the Arctic Ocean. Among the gold-mining entrepreneurs of Siberia there was, according to the Soviet historian D.M. Pinkhenson, a small layer of "progressive" people, who saw further than the ends of their own noses and were concerned with the future of Siberia. The main Russian protagonists of the Northern Sea Route in the second half of the 19th century, V.N.Latkin, M.K. Sidorov and A.M. Sibiryakov, all belonged to this group.

After the Crimean War Western and Central Siberia underwent changes that led to a growing demand for cheap transportation. There was an influx into these regions of colonists from European Russia, partly as a result of the abolition of serfdom in Russia in 1861 and the rapid growth of the rural population in Central Russia. Between 1858 and 1897 the Russian population of Western Siberia rose from 2,300,000 to about five million, i.e. more than doubled. The opportunities available in the north of the region, however, were quite foreign to peasants from Central Russia, and the colonists preferred to settle in areas where they could pursue their traditional occupation, i.e. agriculture. Thus most of them preferred Siberia even to Archangel Province, and once in Siberia they settled in the southern districts of Tobolsk, Tomsk and Yeniseysk, rather than along the middle and northern reaches of the Ob and Yenisey rivers.

However, the development of Siberian agriculture encountered a serious problem in the lack of a sufficient and stable local demand. Because the population of Siberia was relatively small and mainly agricultural, the considerable grain surplus could only be disposed of by either sending it to European Russia or shipping it to foreign markets. The

growth of the gold industry in the 1850s certainly increased both the demand for agricultural products and the need for a labour force. But from the 1860s the gold industry, together with another traditional Siberian export - furs, was in decline. Since many grain producers had had a profitable trade with the gold industry, its decline had a negative effect on them. Harvests exceeded local demand, and this was soon felt in the grain markets of the northern parts of Turukhansk Territory and Yeniseysk District.

To some extent Siberian grain did find its way to European Russian markets. But it competed with grain from Central Russia on distinctly unfavourable terms. Siberian grain was more expensive because it had to be transported over tremendous distances, mostly by river, along routes which although well-established were remarkable for the large number of natural obstacles to be overcome. According to Constantine Krypton (K.G. Molodetskiy) this was the main reason behind a growing interest among Siberians in the freighting possibilities offered by a sea route from Siberia to Europe. Since grain was probably the most important export which stood to benefit from the Northern Sea Route, this idea was particularly popular among Siberian grain producers and grain merchants.(1)

By the 1870s there was in fact a pressing demand among Siberian traders and industrialists for the opening up of the Northern Sea Route. Some even felt that a more direct outlet to Western Europe would strengthen Siberia's political and cultural position, loosening its ties with Central Russia and the Muscovite heritage. Thus in 1878 the newspaper "Sibir" declared: "Siberia should greet the Northern Sea Route as, possibly, the only route that will lead to civilisation"(!)(2) The same geographical circumstances which made Siberian grain expensive in European Russia also put up the prices of European Russian goods by the time they reached Siberia, and the Northern Sea Route was seen as a way of significantly increasing the availability of foreign consumer goods in Siberia. When in 1890 a Norwegian entrepreneur made the first

steps towards setting up a company "for the purpose of establishing a permanent exchange of Norwegian and Siberian products", the Governor of Yeniseysk provided an extensive survey of the local economy. Merchants and town councils all gave their opinions, and these comments by a certain Danilov were typical:

> Trade in Siberia, thanks to exceptional conditions, such as the isolation of the region and the poor routes of communication has from early times been abnormal and concentrated in the hands of a few [...] The struggle against these people requires energy, skill and capital. The Russian manufacturers and factory owners supply the Siberian traders for the most part with goods that have almost lost their value on the markets of European Russia. But the Siberian traders sell these same goods at the corresponding high prices of the markets of Europen Russia. The large amounts of capital, which the Siberian traders possess, their knowledge of the local conditions, their trading skills gained through experience, their continuing trade relations and connections with Moscow and other trading firms make competition with them almost impossible. In the face of such a state of affairs, any attempt at all is consoling, and the efforts of the Swedish-Norwegian merchants to enter into trade relations with Siberia are more than to be wished for.(3)

Economic development in Siberia during the second half of the 19th century generated pressure to put the Northern Sea Route on the political agenda, and this pressure was reflected for instance in the Moscow and St.Petersburg sections of the Society for the Encouragement of Russian Commercial Navigation, which began to publish reports on the question of the Northern Sea Route in the 1870s. Other voluntary and learned societies working for the Northern Sea Route were the Society for the Encouragement of Russian Industry and Trade, the Russian Technical Society, the Free Economic Society, and last, but not least, the Imperial Russian Geographical Society. They all tried in different ways to highlight the question and to convince the Central Government of the importance of the Northern Sea Route to Russia as a whole.

3.1.2 M.K. Sidorov's idea of a Northern Sea Route to Siberia

Pinkhenson maintains that the eventual opening up of the Northern Sea Route to the estuaries of the Ob and Yenisey (the "Kara Sea Route") in the second half of the 1870s was the result of the organizing abilities of Russian commercial circles(4a). A less partisan view would be that it resulted from the combined efforts of Siberian merchant-industrialists and Western European seafarers, scholars and other protagonists of this idea. Indeed, the very history of the Kara Sea Route in the period 1874-1917 indicates, that it only became a viable proposition when a close partnership between the Russians and their Western European partners was established. The great problem of M.K. Sidorov, whom Pinkhenson singles out as the main initiator of the Kara Sea Route,(4b) was his inability to establish such a partnership.

For several decades Mikhail Konstaninovich Sidorov (1823-1887) was the most outspoken protagonist of the Northern Sea Route in Russia. And he was probably the first to conceive of connecting Siberia with Western Europe across the Kara Sea. Sidorov sprang from a family of Archangel merchants. The Russian-born merchants of this city found themselves in a difficult situation after the Napoleonic Wars due to increasing British commercial influence and competition in Northern Russia. Many eminent Russian houses, including the Sidorovs, went into bankruptcy during the 1830s and 1840s. Sidorov's ambivalent feelings towards the British may be traced back to this experience, and he decided very early in life to dedicate himself to restoring the honour of the North-Russian merchant class, as well as the former greatness of Northern Russia.

As an 18-years old boy he travelled to the old monastery on the Solovki Islands (Solovetskiye Ostrova), which had been a bastion of Russian power in the north from the 15th - 18th centuries. During his stay there the young Sidorov realised how powerful the monastery had been in the olden days, and how comprehensive and varied its economic activities. He was

particularly interested in the tales the monks told about how the Pomors sailed across the Kara Sea to the estuaries of the Ob and Yenisey in the 16th and 17th centuries. There had reportedly been an expedition by sea to the mouth of the Yenisey as recently as the 1830s. There could be no doubt that the Kara Sea was indeed navigable, and Sidorov now for the first time conceived his grandiose idea of developing a permanent sea route from Siberia to Europe which would open a new golden age for Russian shipping and industry in the North. North-Russian patriotism was obviously an essential part of the motivating forces behind this scheme, to which Sidorov was to devote most of his life.

Sidorov confided his plans to the Archangel merchant V.A.Popov, hoping to enlist his support. Popov, the owner of a shipbuilding yard and a trading company with long established Norwegian contacts (A. Popov & Sons) could see that the few remaining Russian merchants in Archangel would have to fight hard if they wanted to establish a sea route to Siberia. There was little prospect of success, however, since foreigners would either prevent a commercial sea route from being established, or take it over as soon as it was. Popov told Sidorov that it would be easier to start the work from the east, from the Yenisey area, where the foreigners had not yet established themselves.(5) This was exactly what Sidorov later tried to do. Through a freak of fate he settled down in Central Siberia a few years later and started working for the Northern Sea Route as an entrepreneur in the gold mining industry of the upper Yenisey valley.

By the age of 30 Sidorov had become a wealthy man, and a material incentive was added to his more idealistic commitment to the idea of commercial shipping across the Kara Sea. As the intensive exploitation of the gold-bearing ores in the upper Yenisey valley area led to their depletion, Sidorov and others started looking for new fields for capital investment. The main impulse behind Sidorov's first steps towards the realization of his dream, was his discovery of seven graphite deposits in the Turukhansk District, the richest of which lay

along the Kureyka River. He announced the availability of the graphite in Western Europe, but the only possible way of making it an export item was by transporting it by sea. Together with the Oranienbaum merchant and General Staff Captain Georgiy Koribut-Kubitovich in 1863 Sidorov petitioned the Ministry of Finance for a concession to establish a company with the purpose "of opening a route along the Arctic Ocean to the rivers Ob and Yenisey and extending trade and industry in the northern regions of Siberia".

They asked for very extensive privileges, virtually a monopoly in the exploitation of huge areas. This, according to Krypton, was typical of the way of thinking of the Siberian gold entrepreneurs, who were used to taking risks, but at the same time hoped for enormous profits involving relatively little capital expenditure or indeed perseverance. Sidorov, naturally, emphasized that this arrangement meant that the Northern Sea Route would remain in Russian hands. However, the government was very seldom ready to grant such privileges, and Sidorov had to wait many years for an answer. None the less there were certain indications that persons in high places were sympathetic towards him. In April 1864 he was honoured by the heir apparent, Grand Duke Nicholas Alexandrovich who received him in St Petersburg and praised his work for Northern Russia and encouraged him to continue.(6) Sadly, the Grand Duke died the following year.

3.1.3. Sidorov's struggle with Admiral Litke

Sidorov's first priority was to prove that the Kara Sea was indeed navigable, despite all assertions to the contrary. He delved in Siberian archives for historical backing and tried to persuade learned societies that the Kara Sea was really accessible to commercial shipping. It was a historical fact that Russian vessels had sailed regularly from the White Sea across the Kara Sea to Mangazeya in the late 16th and early 17th centuries. Why should it be thought impossible to reopen a sea route to Siberia in the age of steamships?(7)

But at the same time Sidorov accepted Admiral Litke's pronouncement that the Karskiye Vorota were a more or less naturally impassable barrier between Europe and Asia, and he therefore based his plans on a sea route to the north of Novaya Zemlya. Savva Loshkin had proved both that it was in fact possible to sail around the north of Novaya Zemlya, and also that Russian sailors were capable of doing it. Back in 1859 Sidorov had submitted his first memorandum "concerning the feasibility of a sea route from Europe to Eastern and Western Siberia through the estuaries of the Yenisey and Ob Rivers" to the Governor of Yeniseysk. The governor's answer was, however, negative. Failing to receive support from the local authorities, Sidorov in 1862 decided to start a campaign of his own in St Petersburg.

He first turned to the Imperial Geographical Society, founded in 1845, and to its vice-chairman Admiral Litke. Sidorov offered to transfer 14,000 rubles to the society's funds, to be offered as a reward to the first Russian sailor who managed to reach the estuary of the Yenisey.(8a) Unfortunately, Litke was not overly enthusiastic about this idea. To the best of his knowledge there was no sailor in Russia who could do it, and he advised Sidorov to go to England to find such a man, although he was quite aware of the fact that Sidorov did not care very much for the English. Sidorov gave up this line of attack, and decided instead to turn to Vice-Admiral Pavel Kruzenshtern (Krusenstern), who had been the first to survey the Pechora territory. Kruzenshtern had in the beginning of 1862 sent an application to the Russian Naval Ministry for support for an expedition to the Kara Sea.(8b) He maintained that the only person likely to take on such a mission was his own son, Commander Pavel Pavlovich Kruzenshtern, who was well acquainted with Northern Russia. But Kruzenshtern junior was not in Russia at the time, and thus Sidorov was forced to swallow a bitter pill and go abroad in search of partners.

This brought Sidorov to London, where he seems to have been well received. He was introduced to the Royal

Geographical Society and its chairman, Roderick Murchisson, who was also the head of Great Britain's Geological Survey. They signed an agreement of intention to form a company for the purpose of despatching a vessel to the estuary of the Yenisey. The return cargo was to be graphite from Sidorov's mines on the Kureyka River.(9) On his way back from London, however, Sidorov quite by accident met Pavel Kruzenshtern junior in the railway station of Dvinsk, and Kruzenshtern accepted Sidorov's proposal on the spot. He would try to cross the Kara Sea in his schooner "Yermak", and in return he would receive 5,000 poods of graphite.(10)

Sidorov was right to bet on two horses, for his English partners soon withdrew from the project, allegedly because the governor of Krasnoyarsk refused to give a representative of the firm permission to reconnoitre the Yenisey area. Governor Zamyatin called the Northern Sea Route "a silly idea", and added some disrespectful comments about Queen Victoria. The damage was irreparable; the voyage to Yenisey was cancelled, and the company itself disbanded.(11) Sidorov's only hope was now Kruzenshtern. Vice-Admiral Kruzenshtern did in fact obtain a grant from the Naval Ministry and his son did set out to cross the Kara Sea in the summer of 1862, but failed (see part 2). Admiral Litke was somewhat disparaging about Kruzenshtern's attempt, which he saw as yet further confirmation that navigation through the Kara Sea to the estuary of the Yenisey "belongs to the realm of the impossible".(12) Litke now openly confessed that he had recommended that Sidorov turn to the greatest seafaring nation in the world not because he thought British sailors were really capable of opening a sea route to Siberia, but because an English expedition would demonstrate the fallacy of the idea in a more scientific and definitive manner. Litke must have read Kruzensthern's report of the voyage, published in "Morskoy sbornik", with a certain satisfaction. In it Kruzenshtern stated that "there will never be a sea route to the estuaries of the Ob and Yenisey through the Kara Sea".(13)

3.1.4 The quest for sailors to open the Northern Sea Route

So far Sidorov's efforts had been futile and had only served to reinforce old prejudices concerning the Kara Sea. However, although he had some formidable opponents, he did not give in. Neither had he abandoned the hope of finding Russian sailors who would be willing to take part in his great enterprise. A paucity of qualified seamen was to be expected in a country with only a rudimentary commercial fleet. But Sidorov pinned his hopes on the White Sea skippers who were engaged in the so-called Pomor trade with Northern Norway, which dated back to the late 17th century. The Pomor trade, one of the cornerstones of Norwegian-Russian relations, was based on complementary natural resources: Norwegian fish for Russian grain and timber. The precise volume of the Pomor trade would merit further study, but it clearly had a considerable impact on the daily lives of the populations of North Norway and the Russian North. According to Russian sources in 1870 the Pomor fleet consisted of 400 ships of various sizes. It is also worth noting that the Pomor ships constituted Russia's only entirely national mercantile fleet, and that it had developed without the benefit of state subsidies.(14)

There certainly was a good chance of finding volunteers among the Pomors, and Sidorov sent out an appeal via the governor of Archangel to all Pomor villages in the White Sea area, offering no less than 10,000 rubles to any vessel which would sail to the Yenisey and bring a cargo of graphite back to Tromsø. Yet, very disappointingly, only three people came forward in response to Sidorov's appeal; two of them were sons of merchants, Nikitin from Suma and Norkin from Kem; and the third was a certain Mr. Oskerko, a civil servant from the city of Kola.(15) As the initial response had been so poor, the following summer Sidorov himself travelled along the shores of the White Sea to recruit sailors, but without much success. In Kem he failed to meet up with Mr Norkin, who had already sailed for Norway on the usual trade with the North-Norwegian fishermen. Mr Nikitin was in jail as a result of a paternity

suit. And to make the disappointment complete Sidorov now learned of the untimely death of Mr. Oskerko of Kola. No other volunteers stepped forward.(16)

Since it was impossible to find Russian sailors who were interested in his projects, Sidorov once more had to pocket his national pride and go abroad to find partners. In 1867 and 1868 he visited several countries in Western Europe. In the end he also came to Norway, where the press took great interest in his vision of a sea route to Siberia to the north of Norway. Sidorov exhorted Norwegian sailors to go to the Kara Sea and the waters further to the east and the estuaries of the Ob and Yenisey. In Norwegian newspaper columns his plans assumed greater and greater proportions, and in December 1868 a North-Norwegian newspaper published several articles about Sidorov's plans for "a steamship connection between Finnmark and China", on a route which could be covered in just 25 days.

On his way northwards along the coast of Norway in 1868 Sidorov stayed briefly in Tromsø, where for the first time he met Adolf Erik Nordenskiöld (1832-1901), who had recently returned from an expedition to Greenland. In the correspondence which ensued Sidorov wrote to Nordenskiöld of the enormous potential importance to Norway of a sea route to Siberia, and asked him to encourage Norwegian merchants to send their steamers eastwards, and to urge Norwegian sealers to go to the Kara Sea. These were opportunities which the Norwegians, who were Siberia's closest neighbours, could not afford to lose.(17)

Only the previous year in a lecture to the Free Economic Society in St Petersburg, Sidorov had warned against the Norwegian sea mammal hunters, who "intend to appropriate hunting grounds in the Kara Sea, in the same way as the English and the Americans have taken over our eastern Sea of Okhotsk ..."(18) When it came to developing the sea route to Siberia, however, Sidorov showed no compunction in inviting Norwegian hunting skippers to the Kara Sea, assuring them that at the estuaries of the Ob and Yenisey there were even bigger

stocks of sea mammals than on Spitsbergen or Novaya Zemlya, and saying that the Nentsy, Ostyaki and Evenki living in the area had told him that the sea was sometimes so full of seals and walruses that you could walk ashore dryshod.

Nevertheless Sidorov wanted the Norwegians to cooperate with him and operate within the framework of his own company, which would be completely under Russian control. Among the privileges Sidorov expected to be granted by the Russian Government was a monopoly of sea mammal hunting in the Kara Sea and around the estuaries of the Ob and Yenisey. Five years after its initial submission Sidorov's and Koribut-Kubitovich's application for privileges had been decided upon in principle by the Russian ministries concerned, but it still awaited the final comfirmation by the Tsar before they could start their activities.

There is no doubt that people in Finnmark, the northernmost region of Norway, took a great interest in Sidorov's project. In the middle of October 1868 Sidorov visited Hammerfest, where he had talks with skipper Elling Carlsen, recently returned from his second voyage to Novaya Zemlya. Carlsen had had no difficulty in entering the Kara Sea, and he had no doubt that it would be possible to open a sea route to Siberia, and thus promote a lucrative trade between Siberia and Norway.(19)

Sidorov, however, needed partners with more financial substance than the North-Norwegian skippers, and his most important contact in Norway came to be with Svend Foyn, the founder of the Norwegian whaling industry. Sidorov informed Foyn about his company and its plans, and Foyn's correspondence with Sidorov shows that he took a serious interest in them. In late February 1869 the newspaper "Finmarksposten" reported that Foyn and Sidorov were planning a steamship route between Hammerfest and Obdorsk (present-day Salekhard) using one of Foyn's steamers, and that the route was to be opened by the summer of 1869.(20) However, at the end of February 1869 Tsar Alexander II's long-awaited confirmation of Sidorov's privileges had still not been

received, and Foyn had to put his steamer into whaling. Some apprehensions had also been expressed, that the draught of Foyn's steamers was altogether too deep for the shallow waters of the Gulf of Ob (Obskaya guba) and the estuary.

On March 10, 1869, Tsar Alexander II finally confirmed Sidorov's and Koribut-Kubitovich's privileges. Since the enterprise was considered extremely risky, and its organizers had decided to initiate it at their own expense and without subsidies from the state, the Tsar was ready, at the instigation of the Minister of Finance, to grant Sidorov and his partner a monopoly to exploit the resources of the entire Ob and Yenisey northlands.(21) But in return they had to accept a provision to the effect that the sea route be opened within five years of the privileges being granted, and the company within one year thereafter:

> Over a five-year period ... to outfit naval expeditions for the discovery of a route across the Arctic Ocean to the estuaries of the Ob and Yenisey; and after that, during a one-year period, from the day of the arrival in the estuary of either of the above rivers of a ship acquired or freighted to that point by these enterprises for this purpose, to form a limited partnership for industrial and trading undertakings.(22)

Once in existence, Sidorov's company would be allowed to use the Ob and Yenisey and their tributaries to import foreign goods duty-free for local consumption, and would be able to start tax-exempt fishing and sea mammal hunting in the Kara Sea and in the bays and estuaries of the Arctic coast from the Karskiye Vorota to the Yenisey river estuary inclusive. It appeared that the Russian Government had decided to give Sidorov all possible support in his endeavour to open the Northern Sea Route, apart, that is, from direct financial subsidies.

3.1.5 Flying the Russian flag

Spurred on by the generous privileges granted by the Tsar, Sidorov decided to buy his own steamer in St.Petersburg, and to try to reach the estuary of the Ob under the Russian flag.

On July 30, 1869 Sidorov arrived in Hammerfest on his steamer "Georgiy" to take on coal for his voyage to Northern Siberia.(23) As if anticipating that he would not succeed, Sidorov stressed in an interview with the local newspaper that even if his own attempt proved to be a fiasco, it should not be allowed to discourage other from trying to reach the same goal. Some weeks later the Norwegian press reported that Sidorov had actually reached the estuary of the Ob.

It later transpired that he had not succeeded after all.(24) Then what had happened? The truth of the matter was that when "Georgiy" reached Pechora for bunkering, the captain sounded the alarm. He declared that the coal which had been imported from England was of inferior quality and would jeopardize the voyage eastwards. He would not risk being forced to winter with the crew somewhere in the ice. Sidorov did not know how to resolve this predicament and decided to postpone the crossing of the Kara Sea until the following year. In 1870 he had returned to Pechora to continue his voyage to the Ob, when quite unexpectedly he was invited by Grand Duke Alexey Alexandrovich, the youngest son of Emperor Alexander II, to join his fleet and accompany him on his widely publicised expedition along the Arctic coast of European Russia. Sidorov could hardly reject such an invitation, and followed the Grand Duke to Novaya Zemlya and from there to the Murman coast and the border with Norway.(25)

Two years were then to pass before Sidorov found another opportunity to return to Pechora in order to continue his voyage to the estuary of the Ob. However, in Pechora Bay he unexpectedly met up with Hans Wilczek, the main sponsor of the Austro-Hungarian polar expedition led by Payer and Weyprecht. The main expedition had quite recently set sail from the western coast of Novaya Zemlya in search of a passage to "the open arctic sea", on board the "Tegethoff". Count Wilczek had sailed on "Isbjørn" to lay some depots for the expedition on Novaya Zemlya. Having said farewell to the "Tegethoff" he wanted to reach St Petersburg via Pechora together with his companions. It would be by no means an easy journey, and

Sidorov had no choice but to rescue the Austrians from their predicament. He at once declared his readiness to take them on board the "Georgiy" up the Pechora River as far north as the north of Vologda Province. Then he rushed back to St Petersburg himself to make sure that the foreign guests were received in a proper manner when they finally arrived in the Russian capital.

In 1873 Sidorov was fully occupied in preparing the Russian contribution to the World Exhibition in Vienna, and his plans to open a sea route to the Ob and the Yenisey receded further and further into the background. Having come so close to achieving his aims, it seems that he was not in the least obsessed by the possibility of actually attaining them. It is indeed surprising that he cared so little about fulfilling his long cherished own dreams, after spending so much money, filling so many newspaper columns and writing so many letters. Sidorov's indecisiveness at this stage meant that he was unable to fulfil the terms under which his privileges had been granted within the five-year period. As a consequence he lost his rights, though he petitioned on several occasions for a prolongation, it was to no avail.(26)

3.1.6 Canals and railways instead of a sea route

The special problems associated with navigation in the Kara Sea led to a series of projects aimed at establishing a direct inland route from the Ob and Yenisey - to the Barents Sea, which would make the Kara Sea route superfluous. Several prominent figures, among them Sidorov, his father-in-law V.N. Latkin and A.M. Sibiryakov (1849-1933), another wealthy merchant and gold-mining magnate, put forward ideas about transporting Siberian products from some point on the northern reaches of the Ob to the Pechora River or even to the Northern Dvina, avoiding the Kara Sea altogether. A plan was put forward to connect the Ob and the Pechora (or the Ob and the Dvina) by an inland water route, i.e. by canals. But both the construction and maintenance of the canals would have been

extremely difficult. Many smaller rivers were shallow and vessels quite often would have had to be towed against the current. Moreover, it would have involved a large number of transshipments. Transporting cargo along such a route would certainly have turned out to be a very slow process.(27)

Another alternative was an overland route from Western Siberia to the Pechora River, an idea which Sidorov started to canvass after Kruzenshtern's failure in 1862. In 1864 he produced plans for a route that would take in the lower reaches of both the Ob and the Yenisey. It also included a railway across the northern Urals between Lyakin (on the river Sygva) and Orants (on the Pechora), and barges on the Pechora, Sygva and Sosva. This combination of railway and barges would link the Ob with the estuary of the Pechora, thus bypassing the Kara Sea. Admiral Litke was more enthusiastic about this plan than he was about the Kara Sea route, and said: "It would seem to be entirely feasible and deserves still more attention and support because of the fact that communication with the territory by sea belongs to the realm of the impossible."(28)

However, the two schemes were equally impossible, and there was little to choose between them. Krypton has pointed out that the lack of a settled population in the area would have made it difficult to organise any system of portages, and this was only one of the factors which made an overland route at best very problematic. There were serious obstacles to constructing a northern polar railway, and it is doubtful whether it could have operated for more than a fraction of the year. The English advocate of the Northern Sea Route, Joseph Wiggins, expressed serious doubts in his letters to Sidorov as to whether a port on the Pechora would attract any ships from Western-Europe, as the entrance to the bay was very shallow and dangerous to navigate.(29) When the impracticability of most of these proposals came to light, the protagonists of a Northern Sea Route were once more forced to seek a route across the Kara Sea.

3.2 The opening up of the Kara Sea Route

During his visits to Norway in 1868 Sidorov had indeed succeeded in arousing the interest of Norwegian merchants, shipowners and sea mammal hunters in the Northern Sea Route. On his return to Russia he received a whole series of communications - from Norwegian sealers in Vardø, Hammerfest and Tromsø, as well as from larger firms in Trondheim and Christiania (Oslo). Sidorov gave written authority to the most likely candidates to carry out voyages to the Kara Sea, using the following formula:

> "By virtue of the statute of March 10, 1869, approved by the Supreme Authority, in accordance with which I have been granted the right to equip expeditions for the opening up of a route to the estuaries of the Ob and Yenisey Rivers, I hereby authorize you etc."(30)

Among those who responded to Sidorov's appeal was the director of Holmsen & Co in Christiania, who approached him through the Russian Consul General in Norway. It is evident from Mr Holmsen's letters to Sidorov that he was convinced that Norwegian activity along the northern coasts of Siberia was dependent on Sidorov's approval and the Tsar's sanction of his privileges. Thus, on February 21 1871 Mr Holmsen wrote to Sidorov, informing him that he was sending his schooner "Alfa" to the Arctic Ocean to hunt walruses in the area of Novaya Zemlya: "I therefore ask you most humbly, on the basis of the privileges you have been granted, not to interfere with this vessel". Sidorov pinned this letter to his breast and later cited it in support of the view that the Norwegians acknowledged Russian sovereignty over Novaya Zemlya and in the Kara Sea.(31)

F.D. Studitskiy, who collaborated closely with Sidorov, was the Secretary of the Society for the Encouragement of Russian Commercial Navigation, and he later claimed that the inrush of Norwegian hunters into the Kara Sea in the late 1860s was a result of Sidorov's campaign for the Northern Sea Route. Even Krypton repeats this assertion.(32) It is a fact, however, that the Norwegian sea mammal hunting in Novaya

Zemlya and the Kara Sea had started well before Sidorov made his first visit to Finnmark in autumn 1868. The first Norwegian sealers went to Novaya Zemlya and the Kara Sea quite of their own volition. Elling Carlsen of Tromsø (1819-1900) is thought to have been the first Norwegian sealer to visit the Kara Sea, and Nordenskiöld dates Carlsen's first voyage to the year 1868.(33) In fact, Elling Carlsen first went to Novaya Zemlya in 1867 on the sloop "Solid", belonging to O.I. Finckenhagen, a merchant from Hammerfest. The Russian North was not unknown to Carlsen even then, since he had been crew on a Norwegian ship on the Archangel run during the Crimean War.(34) It is possible that he first heard about the hunting grounds of Novaya Zemlya during his visits to the Russian "gateway to the Arctic".

Until about 1860 the North Norwegian sealing vessels had hunted almost exclusively along the western coasts of Spitsbergen. During the 1860s the Norwegian hunting industry started to expand, and the stock of walrus, seals and polar bears on the Spitsbergen archipelago were rapidly decimated. The sealers now pushed farther to the north and east, into as yet uncharted waters. As a result of these exploratory voyages a skipper from Hammerfest, Nils Rønnbeck, discovered some new land in 1865 which he called North-East Spitsbergen, which Norwegians identify as Franz Josef Land. Only a few months earlier a Russian naval officer, Baron N.G. Schilling in a work on sea currents in the Arctic Ocean had suggested the existence of an Arctic archipelago between and to the north of Novaya Zemlya and Svalbard.(35)

Two years later Elling Carlsen sailed all the way to Novaya Zemlya. Despite the geographical maxim then prevalent in Russia, Carlsen sailed through the Karskiye Vorota without encountering any serious obstacles, continued some good way into the Kara Sea and returned through Yugorskiy Shar. When he went back to the same area in 1868 he was followed by another Norwegian vessel, and "Finmarksposten" reported that both ships came safely back to Hammerfest with good catches. The newspaper predicted that the following year every sealer in

Hammerfest and Tromsø would drop Spitsbergen in favour of Novaya Zemlya.(36)

Thus Carlsen was well acquainted with Novaya Zemlya and the Kara Sea when he met Sidorov for the first time in Hammerfest in autumn 1868. In 1869 no fewer than 18 Norwegian vessels with a combined crew of 186 were hunting on Novaya Zemlya.(37) In the same year an Englishman, Major John Palliser, also sailed to the Kara Sea and went as far as Belyy Ostrov,(38) a foretaste of a strong British involvement in the development of the Northern Sea Route. Up until 1874, however, the Norwegians were quite the masters in this area, which they called the "Eastern Ice", sometimes referring to Novaya Zemlya as "Old Spitsbergen". According to reports from the Swedish-Norwegian Consulate-General in Archangel in 1870 between 80 and 90 Norwegian vessels took part in the sealing at Novaya Zemlya and in the Kara Sea, compared with only 8 Russian ships. The Russians continued to play a modest part in the hunting throughout the 1870s. The records of the harbour master at Archangel show that the number of Pomor hunting vessels in the years 1871-1877 varied between 1 and 10.

RUSSIAN VESSELS HUNTING IN THE NOVAYA ZEMLYA AREA 1870-77

Year	Vessels	Tonnage	Crew
1870	8	150	56
1871	5	119	38
1872	8	225	60
1873	1	24	7
1874	4	91	24
1875	5	125	36
1876	9	243	52
1877	10	461	59

Source: Communication from the Norwegian-Swedish Consul-General in Archangel to the Norwegian-Swedish minister in St Petersburg March 27, 1878. The Archive of the Norwegian Ministry of Foreign Affairs P5 Æs/23.(39)

In their rivalry with the Pomors the Norwegians had a clear advantage in that they benefitted from ice-free waters; they could follow the ice-free channel off the Murman coast and reach the hunting grounds at the entrance to the White Sea by the end of April or beginning of May. From there they continued to Novaya Zemlya as soon as ice conditions allowed. The Pomors on the other hand had to wait until the ice melted in the White Sea. This meant that they could only reach Novaya Zemlya at the end of May or beginning of June.(40)

The Pomors themselves explained their modest activity in this area by claiming they had been displaced by the influx of Norwegian vessels. There was certainly some truth in this argument, but at the same time the decline in Pomor sea mammal hunting on Novaya Zemlya was only one element in the general decline of Pomor hunting and seafaring in the north during the 19th century. By the early 1850s the Pomors had already wound up their activities on Spitsbergen and Bear Island, and there is little doubt that the scale of their hunting off Novaya Zemlya had been considerably reduced before the Norwegians came on the scene. In Pechora Sidorov was told that the last Pomor lodya from this area had visited Novaya Zemlya in 1857, and Sidorov considered this to be a consequence of the general decline in Russian fisheries and sea mammal hunting.(41)

Sidorov's somewhat ambivalent attitude to the role played by foreigners in the Russian north has already been mentioned. On the one hand he warned against the Norwegians hunting in Russian waters and called on the government to intervene against them. On the other hand he was quite happy to invite them into the selfsame areas to assist him in the important task of opening up the Northern Sea Route. However, the North Norwegian skippers did not seak anyone's permission to sail into the Kara Sea, nor did they show much inclination to cooperate with Sidorov, even though they could have easily made their way to the estuaries of the Ob and Yenisey. When this became clear Sidorov and his supporters accused them of only being out for their own advantage, which of course was basically true. The Norwegians played a lone hand, acting

quite independently of Russian interests, and this meant that their voyages had become rather unreliable as far as the Russians were concerned. Having lost faith in the Norwegians, Sidorov now took great pains to put an end to their activity.

3.2.1 The Norwegian contribution to the exploration of the Northern Sea Route

Although the Norwegian hunters did not set out with the aim of opening the Northern Sea Route, they made a considerable contribution to the project. Nordenskiöld himself later acknowledged their achievements, as did the German geographer August Petermann. The Tromsø skippers were, after all, not preoccupied with their trade to the exclusion of all else. They also took an interest in science. This interest had been stimulated by their contacts with Swedish scientific expeditions to Spitsbergen in the period 1858-1868, led by Otto Torell and A.E. Nordenskiöld. While the Swedes were carrying out well planned research programmes in Greenland and Spitsbergen, the Norwegian scholars of the time were not engaged in any polar research, and it can be argued that the North-Norwegian skippers to a certain extent compensated for the lack of Norwegian achievements in this field. Most of the Swedish expeditions used the small ice-strengthened vessels of the Tromsø skippers. The Swedish scholars were well aware of the potential scientific contributions of the North Norwegian hunting expeditions, and encouraged the skippers to undertake exact and systematic observations during their voyages. Many of the vessels were equipped with instruments for meteorological and other observations.(42)

As time went by, Nordenskiöld got to know the Tromsø skippers well, studied their logbooks carefully and made use of their observations. In 1868 he had a long conversation with the 24 year old skipper Edvard H. Johannesen. In the following year Johannesen made a remarkable voyage to Novaya Zemlya and the Kara Sea, and on his return sent his observations to the

Swedish Academy of Sciences. The Academy awarded him a silver medal, and Nordenskiöld wrote to Johannesen to the effect that if in the following year he could circumnavigate Novaya Zemlya on board his schooner, the achievement would certainly earn him a gold medal. When in the late autumn of 1870 Nordenskiöld returned from an expedition to Greenland he found a new report from Johannesen waiting for him: "Hydrographical Observations during a Hunting Expedition around Novaya Zemlya." Johannesen was the first since Savva Loshkin to circumnavigate Novaya Zemlya, and he was the first to do it in a single season. Johannesen had also charted the northern tip of the archipelago. His map, though far from impeccable, gave a clear indication that the northern island of Novaya Zemlya was less elongated towards the northeast than had been suggested by Litke in the 1820s (see part 2).(43)

Edvard Johannesen's scientific achievements were the result of his relationship with Nordenskiöld. Other skippers were influenced by the Russian advocates of the Northern Sea Route. In 1871 Fritz Mack of Tromsø repeated Johannesen's circumvention of Novaya Zemlya on the schooner "Polarstjernen" ('Polar Star'). Mack knew from newspaper reports that V.N. Latkin had offered a prize of 1,000 silver rubles to the first to sail to the mouth of the Ob and from there southwards to Obdorsk. Mack decided to try for it, and having passed the northern tip of Novaya Zemlya he sailed further east into the Kara Sea than anyone before him, reaching a longitude of 81 degrees, 11 minutes east, a little to the east of the Yenisey estuary.

Mack could see no "iceblink" in any direction and afterwards stated there had been nothing to stop him from sailing east along the coast of Northern Siberia all the way to Bering Strait. Perhaps Fritz Mack slightly underestimated the difficulty of reaching that particular destination. Nor would it have been easy for him to reach Obdorsk without a river pilot. In the end Mack had second thoughts and decided that it was incompatible with his commission as captain of a sealing vessel to set out on such a risky venture.(44) In the

same year Søren Johannesen of Tromsø also reached the estuary of the Ob, but he too was unwilling to risk his vessel in the shallow waters. Both he and Mack, as did many other Tromsø skippers, left interesting diaries and sketch maps. August Petermann used these as a basis for two maps of Novaya Zemlya, which he published in 1872 and which were in a way a summing-up of the scientific achievements of the North Norwegian skippers in that area. One of the maps covered the whole archipelago, the other its north-eastern part. Petermann described the maps as a great advance on the earlier Russian surveys.(45)

Petermann was of the opinion that the Norwegian voyages around Novaya Zemlya and in the Kara Sea were the most important achievements in polar research for the last 25 years. Norwegian hunting in this area for three successive years gave the lie to the old maxim that the Kara Sea was an "ice cellar". With the Norwegians operating from June to October it became clear that navigation in this area was possible for 20 weeks a year. This was better than anything that had been achieved so far in either Arctic or Antartic waters. Opening the North-East Passage had now become a real possibility.(46)

A note of caution should, however, be sounded about hailing these voyages in the Kara Sea as the result of Norwegian valour or masterly seamanship. It is true that the Russians' own explorations had led them to conclude (incorrectly) that the Kara Sea was not navigable, and that they were proved wrong by the Norwegians. But we should point out that the Norwegians benefitted from very favourable ice conditions around 1870. There certainly is something in the argument of the Soviet polar historian, V.Yu. Vize, who maintains that it was just as wrong to claim that the Kara Sea was navigable as it was to claim it wasn't. In fact ice conditions were extremely difficult again in 1872, causing the loss of five of Tromsø's finest vessels and severe difficulties for others. Petermann's conclusions might well have been somewhat premature.

NORTH-NORWEGIAN VESSELS IN THE ARCTIC OCEAN 1867-1900

Year	Total Number	In the Eastern Ice
1867	27	1
1870	71	16
1878	51	*
1883	41	11
1887	57	36
1891	60	17
1893	53	44
1895	46	19
1898	72	20
1900 #	71	34

Source: Kaare Valle, En oversikt over konfliktene mellem Norge og Russland om selfangsten i Østisen i tidsrommet 1893-1926, p. 13. * = lists missing. # = based on figures in L.L. Breytfuss, "O granitsakh territorialnykh vod evropeyskoy Rossii", Russkoye sudokhodstvo 1907, p. 54.

3.2.1.1 Russian response

There were some in Russian circles who valued the Norwegians' activities, one of them being the geographer (and anarchistic writer) P.A. Kropotkin, who wrote that in 1870 they "not only criss-crossed the Kara Sea in all directions, but several of them made such complete [...] observations, that they increased [...] the store of our knowledge about the Kara Sea to an extent no one could have expected a few years ago". Prince Kropotkin pointed to the fact that the Norwegian activity had led to a renewed interest in polar exploration in Russia itself.(47) However, the general attitude towards the Norwegians in the Russian press was negative, because they allegedly represented a political threat. Sidorov maintained that Norwegian activity in the Kara Sea constituted a kind of "Arctic imperialism", and that the walrus hunters wanted to give Novaya Zemlya the status of a neutral area or "no man's land".(48) There were even rumours that the Norwegians had

systematically destroyed old Russian sites, crosses and cabins on Novaya Zemlya in order to undermine Russian historical rights and political sovereignty over the area.

The Norwegian-Swedish Consul-General in Archangel received a lot of complaints about Norwegian overhunting and misconduct, but he countered these attacks by referring to the sealers' scientific achievements. In a letter to the governor of Archangel in 1878, he argued that the Norwegian hunting expeditions to the Kara Sea had paved the way for Nordenskiöld's discovery of the sea route to the estuaries of the Ob and Yenisey in 1875-1876, and that this would probably be of vital importance for future trade between Siberia and the western world. It was therefore hard to understand why the Norwegian voyages to the Kara Sea and Novaya Zemlya were considered detrimental to Russian interests.(49)

To those Russians with xenophobic inclinations, the fact that the North Norwegian skippers carried out scientific observations during their voyages and had thus completed the work that Russian cartographers had abandoned in 1839 was not a mitigating circumstance. Their criticism was sharpened by the fact that the Norwegians were working under the guidance of Swedish scientists and that the opening of the Northern Sea Route was being portrayed as the result of a collective Scandinavian effort. Russia, the greatest empire in the world, should not be left standing as a more or less passive onlooker as foreigners solved the problem of opening a sea route from Europe to Siberia.(50)

The reaction of the Russian Government to the Norwegian challenge was more diplomatic and cautious. Russian archive material indicates that Russian authorities at the turn of the century still acknowledged "the importance of the navigation of Norwegian hunters in these waters, providing extremely important material for the exploration of the Kara Sea, that would otherwise have been difficult to obtain because of the severe navigational conditions [...]".(51) Several proposals to ban foreigners from Russian waters were rejected by the government.

At the same time the Council of Ministers realised that the absence of any Russian settlements on Novaya Zemlya was a serious problem. Advantageous terms were offered to any Russians who might be willing to settle in the archipelago and thus counterbalance the Norwegian presence, but this scheme ran with serious difficulties. Instead the Governor of Archangel launched a proposal whereby the Nentsy would colonize Novaya Zemlya. With a colony of Nentsy on the island the Russian Government would have a better claim to the archipelago, and being an Arctic people, the Nentsy would be better able to adapt to the severe conditions than the Russians. An obvious advantage of this scheme was that the Nentsy did not live in an area which was spread over several countries, as was the case with the Saami people, whose national affilitions for that reason was more ambiguous. The Nentsy were a purely "Russian" minority or group of "inorodtsy", and their colonization of Novaya Zemlya was regarded by foreign countries as an effective occupation of the land.(52)

In many ways this project was a success, and by the turn of the century there were more than 100 Nentsy on Novaya Zemlya. Increasing international awareness of Novaya Zemlya also led the Russian authorities to increase their research activities in the archipelago. In 1877-78 a meteorological station was set up at Malye Karmakuly, and during the International Polar Year of 1882-83 Malye Karmakuly was one of two Russian stations taking part in the international research programme. The other was at the mouth of the Lena river.(53) In 1895 the Russian Ministry of Agriculture and the Ministry for the State Domain provided the funds for an all-purpose expedition under the leadership of Academician F.N. Chernyshev. Its main task was to study the geology of Novaya Zemlya, but the Russian authorities did not hide the fact that it also had a political purpose, pointing out the disquieting fact that Russian resources in the North were located in places where they "openly and without any camouflage are being plundered by foreigners".(54)

3.2.2 The breakthrough for the Kara Sea Route

So did the Russian authorities welcome the development of the Northern Sea Route, or were they hostile to it? There is no ready answer to this question, which would benefit from further historical study. Although Constantine Krypton maintains that it was political factors in pre-revolutionary Russia and not natural barrièrs which constituted the greatest obstacles to the development of the Northern Sea Route, this would seem to be an oversimplification.(55) My own view is that the Russian Government was not opposed to the Northern Sea Route in principle, but was not ready to embrace the idea wholeheartedly before it had consolidated its position in the north. The lack of military port facilities in Russia's northern regions, the absence of economically developed settlements, and the inadequacies of local administrations, all made control over incoming ocean vessels an almost impossible task.

Moreover, the geographical and climatic realities meant that it would be very expensive to establish the necessary control and surveillance, and the Northern Sea Route was probably not considered important enough to justify the costs. In the late 1860s Sidorov's plans seemed to be a feasible option to the Russian government, since control over the Northern Sea Route would remain firmly in Russian hands, there would be no disbursements for the Russian Treasury, and it would be in the company's own interests to control foreign activity. But since Sidorov was unable to navigate the Kara Sea and thus failed to fulfil his side of the bargain, the government naturally lost confidence in him and had to face up to increasing British, German and Scandinavian activity in the area.

It had good reason to fear that the Northern Sea Route would increase the danger of smuggling into Siberia and pave the way for foreign penetration, and there was increasing industrial protectionism in Russia in the 1880s and 1890s. The

very location of Russian industrial centers made it obvious that the Northern Sea Route would be extremely advantageous to Western European merchants, and foreign trade could easily be followed by foreign capital. The absence of a nobility in Siberia, which could have guaranteed the political credentials of the Northern Sea Route was also incompatible with politico-economic thinking in St Petersburg.

With its concern for the industrial development of Russia proper, the Tsarist Government was afraid that the Northern Sea Route would develop outside the control of the government and possibly encourage local Siberian patriotism or even separatism. In 1885, a specially convened government commission came to the conclusion that the development of foreign industry in the outlying regions of the empire would do more harm than good to the interests of the Russian Government:

> "Foreign industrial enterprises in the outlying regions, which compete with our native industries under conditions that are extremely disadvantageous for the latter, have served as one of the most powerful weapons of that peaceful conquest of the border regions to which it would be desirable to put an end."(56)

However, it was also apparent that it might be even more dangerous to continue disregarding the vital needs of Western and Central Siberia, and the government was not, as we shall see below, insensitive to the demand for foreign outlets for certain Siberian products which, together with minerals and ores remained unworked because it was impossible to export them.(57) In principle the Russian Government was not unwilling to open some route which would secure communication between Siberia and the outside world, even if, as it became apparent, it was dependent on assistance from abroad in creating this artery. But it was still necessary one way or another to control the Northern Sea Route.

The attitude of the government was thus not very different from that of Mikhail Sidorov himself. Having lost his monopoly privileges in 1874, Sidorov established a close relationship with the British sea captain Joseph Wiggins, who visited St Petersburg in the autumn of 1875. Wiggins wanted

the Russian Government to commission him to open the Kara Sea Route and grant him the privilege of duty-free import to Siberia. Realizing that this was out of the question, Wiggins, with Sidorov as intermediary, entered into negotiations with the Society for the Encouragement of Commerce and Industry and the Society for the Encouragement of Russian Commercial Navigation. These societies undertook to provide funds for an expedition of "a scientific character". It was to be a "Russian" expedition, but with Wiggins as its leader. Everything was agreed upon, but it later became clear that the subscriptions were inadequate for the large scale expedition which Wiggins was contemplating. When the Russians also revealed their intention to appoint a Russian naval officer to be in overall command, Joseph Wiggins decided to withdraw from the project.(58)

Although this major cooperative project had come to nothing, Sidorov and Sibiryakov decided to put their stakes on Wiggins, who was to play a very important role in the opening up of the Kara Sea route.(59) Wiggins had already been on one voyage to the Kara Sea. In 1874, on the steamship "Diana" he had actually reached the estuary of the Ob by the Kara Sea Route. However, since the vessel was leaky, supplies were running short and the crew, consisting of Scottish whalers, was less than enthusiastic, Wiggins headed for home without having actually entered the river. Historians therefore hesitate to ascribe to Wiggins the honour of having opened the Kara Sea Route. For instance, in the historical introduction to the account of his voyage through the North-East Passage in 1878-79, "The Voyage of the Vega round Asia and Europe", Nordenskiöld only mentions Wiggins' 1874 voyage as it were in passing.

As an enthusiast advocate of the Northern Sea Route, Joseph Wiggins of Sunderland (1832-1905) was a solitary figure in England of the 1870s. It is still unclear as to how he first became enamoured of the idea. According to Wiggins' biographer, Henry Johnson, he simply dreamed up the idea of a sea route to Siberia by studying maps of the area. He was

concerned that "merchandise from Europe for the people of Siberia had to be carried overland at great expense, and the riches of Siberia itself were scarcely developed at all".(60) And then there were these gigantic rivers, emptying themselves in the Arctic Ocean and paving the way to a possible passage westwards to the great centers of European civilization. Though there is no mention of it in Johnson's book (published in 1907) Wiggins, who used to refer to himself as "a humble mariner", must have had some knowledge of the early British navigations in search of the North-East Passage during the 16th and 17th centuries (see part 1). He probably also knew of Sidorov's visit to London in 1862 and his negotiations with the Royal Geographical Society.

It seemed a crying shame to Wiggins that such a vast commerce should lie dormant for the want of enterprise, and he expressed the opinion that England "with all her means" should take on the prime responsibility for developing "the northern highway to and from the Siberian rivers".(61) But in a letter to Sidorov in 1875 he made it clear that it would be more difficult to get support in his own country for this great idea in the present climate of opinion than it had been at the time of Sidorov's discussions with Roderick Murchisson in the early 1860s. Against such a background the prospect of financial support from Russian entrepreneurs became all the more important. Wiggins had learned through August Petermann about Sidorov's prize, offered back in 1869, and his first expedition was based on the assumption that he would collect this reward. Unfortunately he did not succeed in winning it since one of the preconditions attached to the prize was that some merchandise should be brought back to Western Europe.

Wiggins had sailed eastwards in 1875 on his second expedition on board the "Whim" before managing to establish contact with any Russian partners. The expedition ended inconclusively having sailed as far as the Yamal Peninsula. However, a few months later he visited St Petersburg and it was then that he became involved with a group of like-minded Russians. Although the plans for a joint Russian-English

expedition came to nothing, Wiggins decided all the same to go ahead with his next expedition, scheduled for the summer of 1876. He bought a 120-ton screw-steamer, the "Thames", formerly a clipper schooner, and had her double-planked with thick elm, and her bows and helm cased with iron. Sibiryakov gave Wiggins £ 1.000 and later offered him a prize of 3,000 roubles if he managed to enter the mouth of the Ob and reach Obdorsk.(62)

Wiggins was also to return with a cargo of graphite and other goods from the Yenisey, and Sidorov undertook to have them ready for him at the Kureyka River. The proceeds of the sale of the cargo were to be shared equally by Wiggins and Sidorov. Wiggins succeeded in crossing the Kara Sea, but for various reasons he had to abandon the idea of sailing up the Ob and headed directly for the Yenisey. He entered the estuary of the Yenisey without any difficulty and sailed up it all the way to the Kureyka River, some 420 miles from the sea, arriving there at the beginning of September 1876. Since Nordenskiöld had sailed to Yenisey in 1875 and thus beaten him by one year (a voyage which he repeated in August 1876), Wiggins could not claim to be the first sailor from Western Europe to have entered this river. But the "Thames" was certainly the first ocean-going steamer that ever sailed up the Yenisey or any of the Siberian rivers.

In some ways Wiggins' 1876 voyage was very successful, in other ways less so, and from a financial point of view it was a disaster. As Wiggins had not succeeded in entering the Ob, he could not claim Sibiryakov's prize. Wiggins had to overwinter with his crew on the Yenisey, and in the end he had to abandon his ship. As a result he had to cancel his arrangement with Sidorov. Wiggins' three voyages to the Siberian rivers had practically bankrupted him. When these facts are known, Pinkhenson's claim, that Sibiryakov and Sidorov financed Wiggins voyages, must be regarded as a slight exaggeration. Wiggins was not merely a pawn used by Russian entrepreneurs. He started his voyages quite of his own volition and completed the first two without any assistance

from the Russians. The money he received from Sibiryakov in 1876 was not a lot and certainly not enough to solve his financial problems. Wiggins himself stated that so far Sibiryakov was the only man in Russia who had given him any practical assistance. As for Sidorov, he laid lots of plans and made many promises, but he did not always fulfil them.(63)

It is nevertheless true that in later years Wiggins cooperated closely with Russian commercial interests as well as with the Russian Government in carrying out expeditions to the Siberian rivers. He continued his indefatigable work for the Northern Sea Route throughout the 1880s, the 1890s and right up to 1905, when, having helped to organize a major new expedition to the Yenisey, he became ill and died. There is no doubt that Wiggins was more committed to the great idea of developing the Kara Sea Route than was Nordenskiöld, whose voyages to the Yenisey in 1875 and 1876 were undertaken primarily as preparation for his ambitious plan to navigate the through route from Europe to Asia.

Nordenskiöld's friendship with Sidorov was of longer standing than Wiggins', and it may well have been Sidorov who inspired him to explore the Northern Sea Route. For all that, it seems that he planned his first expedition to the Ob and Yenisey more or less independently of his Russian patrons. The Swedish wholesale merchant and patron of science, Oscar Dickson, declared his readiness to pay all the costs of the expedition, which was to sail on board a Norwegian polar vessel. Nordenskiöld wanted to take advantage of the experience of the North-Norwegian hunters and their knowledge of the Kara Sea, and so one of his merchant friends in Tromsø found him a well-built hunting vessel, the "Prøven". Its Captain, Isak Isaksen, had sailed with Nordenskiöld to Spitsbergen in 1864 and had several years' experience of the "Eastern Ice". Eleven Norwegian sailors were recruited for the expedition. Acting more or less as though Wiggins' voyage of the previous year had never happened, Nordenskiöld declared that the aim of his expedition was to provide the

demonstration of the feasibility of a sea route to Siberia. He would do this by not only entering the estuary of the Yenisey, but also by sailing upstream until he reached the economically developed areas of the Yenisey valley.

The "Prøven" left Tromsø on June 8, 1875. At the Karskiye Vorota they had to wait several weeks for better ice conditions, but then the "Prøven" crossed the Kara Sea without difficulty and reached the mouth of the Yenisey on August 15. The crew landed on a small island, which was named Dickson in honour of their patron. Here the expedition split up; the "Prøven" returned to Norway, while Nordenskiöld, two scientists and three Norwegian sailors loaded a large rowboat with supplies and headed upstream until they met a river steamer, on which they later reached Yeniseysk. From Yeniseysk Nordenskiöld went on to Krasnoyarsk, Tomsk, Omsk, Yekaterinburg, Nizhniy Novgorod, Moscow and finally reached St Petersburg. Nordenskiöld's expedition was followed with great interest in Russia, and there is no doubt that this voyage stimulated the government's concern for the Northern Sea Route. His arrival in the main cities was marked by festive dinners in honour of the Scandinavian scientists.(64) When he at last arrived in St Petersburg Nordenskiöld was made a honorary member of the Russian Society of Natural Scientists, and the Russian Government made him a formal expression of its gratitude. At a dinner given to his honour by the Society for the Encouragement of Commercial Navigation, Nordenskiöld declared that his navigation to the Yenisey was only the first step towards Bering Strait. Having taken this first step, he was now ready to go further.

Nevertheless it could still have been argued at this stage that the success of Nordenskiöld's voyage to the Yenisey in the summer of 1875 was just a lucky break, and that ice conditions in the Kara Sea would usually be such as to prevent ships from reaching Siberia. To silence these criticisms and furnish additional proof that shipping to Siberia was possible, Nordenskiöld decided to organise another voyage to the same destination as soon as possible. Oscar Dickson was

once again willing to finance the venture, but Nordenskiöld also received a telegram from Alexander Sibiryakov offering to contribute no less than 25.000 rubles to the second Yenisey voyage, which made him the expedition's main backer. The Russian Ministry of Foreign Affairs directed that "every possible assistance" be given to Nordenskiöld's second expedition, "so that its stay in Siberia may actually be of use to the region..."(65) Nordenskiöld was also informed that the Russian Ministry of Finance would allow his ship free entry to Russian waters, as well as duty-free import of goods destined for Northern Siberia. He evidently had the full backing of the Russians for his second expedition to Siberia.

A steamer, the "Ymer" was chartered for this voyage, and Nordenskiöld sailed from Tromsø to the Yenisey in record time. It did not seem to matter that apart from this almost everything went wrong, as George Kish makes clear in his biography of Nordenskiöld. While Nordenskiöld was sailing from Norway, a party of scientists was to make a careful survey of the lower reaches of the Yenisey. They were to travel overland to the upper Yenisey, then continue downstream and meet Nordenskiöld in the estuary. From there they would guide Nordenskiöld and his party upstream to Dudinka, where merchandise from Europe and goods from Siberia were to be exchanged.(66)

This second party, however, did not manage to reach the mouth of the Yenisey and meet up with Nordenskiöld, and as a business venture, the voyage of the "Ymer", was not a great success. Nevertheless, the fact that the voyage had gone so smoothly made a deep impression, and seemed to many observers to provide final confirmation that a sea route across the Kara Sea was a real possibility.(67) This conclusion was further corroborated by Joseph Wiggins, who arrived safely at Kureyka on the "Thames" at the beginning of September 1876. The "Thames" never made it back, but the "Ymer" returned to Tromsø on September 22, and Nordenskiöld summed up his opinion of the voyage in a report, dated Tromsø, September 27, 1876:

> I am convinced, and this conviction is shared by the fishermen and sealers with whom I spoke here, that regular sailings between Siberia and northern Europe present neither greater difficulties nor greater perils than those met by sailors on seaways used by thousands of ships every year.(68)

Nordenskiöld and Wiggins' achievements of 1876 attracted much attention, but they were followed in 1877 by a voyage which almost obscured them. Having wintered in the Yenisey area, in 1877 Joseph Wiggins obtained a little flatbottomed schooner, the "Ibis", built in Yeniseysk, in which he planned to return to England. However, he failed to persuade his crew to risk their lives with him in this tiny vessel. Sidorov now saw a chance for the Russians to make their mark and suggested that he might buy the "Ibis". Wiggins once more appealed to the courage and patriotism of his crew, pointing out that if they still refused the Russians might well sail the ship to Europe, but to no avail.(69)

A Russian sea-captain, David Ivanovich Shvanenberg (Schwanenberg) then bought the "Ibis" on Sidorov's account, and renamed it "Utrennyaya Zarya" ('The Dawn'). It was manned by Shvanenberg himself, two sailors and a crew of two, Siberian exiles. "Utrennaya Zarya" left Yeniseysk on August 13, 1877, but stopped at the estuary of the river to take on a small cargo of fish, furs, and graphite samples from Siberia. Contrary to all expectation, "Utrennyaya Zarya" crossed the Kara Sea with ease and continued on a quite spectacular voyage along the Murman coast and around the Scandinavian peninsula to St Petersburg. It lasted for four months, and everywhere the "Utrennyaya Zarya" anchored along the way the crew were greeted as heroes, and for a while the voyage was the centre of attention for the press and business circles. It finally dropped anchor in the Russian capital on December 3 1877.

"Utrennaya Zarya" was the first ship to reach the Russian capital from Siberia, and this voyage was politically very important for the Russians. Although Sidorov and his supporters had had to engage the services of foreigners to achieve a breakthrough on the Kara Sea Route, many felt that the time had now come for the Russians themselves to take

over. The voyage of the "Utrennyaya Zarya" was a personal triumph for Sidorov, but unfortunately he had now run out of funds and was no longer in a position to further the development of the Northern Sea Route.(70) But others took over and the voyage of the "Utrennyaya Zarya" introduced a period of considerable Russian activity.

From the outset the Russians attached special importance to the development of trade links between the Ob region and Western Europe, because economic development had progressed further here than in the Yenisey area. However, shoals and shallow water presented serious obstacles to navigation in the Gulf of Ob and in the estuary. There was certainly a pressing need for hydrographical research and mapping. The Society for the Encouragement of Russian Industry and Trade had sent an expedition to the Ob in 1876 to study the possibility of linking Baydaratskaya Guba on the Yamal Peninsula, known as "Muddy Gulf" by the Norwegians, and the Ob, by way of the rivers Baydarata and Shchuchya. This was the route used by the Pomors who traded with Mangazeya in the late 16th and early 17th century, and Joseph Wiggins had been canvassing this scheme for many years, and had even tried to find the Pomors' route himself.(71) By using this route shipping would avoid most of the drift ice of the Kara Sea, as well as the hazards of the Gulf of Ob and the river estuary.

The expedition succeeded in traversing the route and reported favourably on it, as well as on the possibility of connecting the two rivers by a canal. However, this project was not taken any further. Another expedition, fitted out by the Bremen Polar Society ("Bremer Polarverein", from 1877 "Geographische Gesellschaft in Bremen"), financed by A.M. Sibiryakov, one of its honorary members, warned against the problems of permafrost, and opinion in Siberia was also against the canal project, as such a route was thought to be unnecessary once the Kara Sea Route was opened.(72) The Society for the Encouragement of Russian Industry and Trade now asked the government to fund a major expedition to carry out a comprehensive survey of the lower reaches of the Ob. The

Society for the Encouragement of Russian Commercial Navigation also took an interest in this question. In 1876 the Moscow merchants A. Komarovskiy, A. Trapeznikov, V. Sobashnikov, and I. Chernyadev, who were all members of the Society, joined Alexander Sibiryakov in organizing the voyage of a sailing ship, "Moskva" built in Tyumen, to the lower reaches of the Ob with the aim of charting the riverbanks and sounding the depths. The expedition failed to achieve any of its aims, but in the following year the same captain, H. Dahl, was given the job of bringing the small propellor-driven "Luise" from Western Europe to Siberia to study the Bay of Ob and the ice conditions in the Kara Sea. Although the scientific results of this second expedition were also very modest, the "Luise" became the first ship from Europe to reach the Ob since Wiggins' somewhat inconclusive voyage of 1874.(73) It also carried a small cargo.

The most important thing was that the "Luise" had, after all, arrived safely. The profits to be derived from trade with Western Europe were so great that several Russian merchants were willing to take the risk, and continued to send ships with commercial cargoes from the Ob. In 1878 Trapeznikov dispatched the "Luise" back to Western Europe together with the schooner "Sibir", which had been built in Tyumen. The vessels were loaded with grain and various raw materials, valued at 100,000 silver rubles. The "Sibir" arrived safely in London on October 25, 1878 amid great acclaim. But the "Luise" unfortunately went aground in the Gulf of Ob, leaving almost 10,000 poods of her cargo in the waters of the gulf. Trapeznikov made his last serious attempt in 1880, sending three schooners to Europe. One of them ran aground on a sand bar as she sailed down the Ob. The other two were wrecked in the Kara Sea.

It did indeed seem that successful commercial voyages westwards from the Ob could be regarded as lucky exceptions and so, at least for the time being, the Ob estuary was abandoned as a trade channel with Europe. The Yenisey estuary was undoubtedly more readily accessible to ocean-going

vessels. It seemed that vessels which entered the Kara Sea in late autumn stood a fair chance of reaching Yenisey Bay (Yeniseyskiy Zaliv), and after unloading and reloading at Port Dickson, returning to Europe before the end of navigation. Wiggins' and Nordenskiöld's experiences in 1874-76 had also proved that the Yenisey was deep enough to allow ocean-going ships to sail upstream for considerable distances. Although agriculture was not as developed in the Yenisey valley as it was in Western Siberia, the grain crops of Yenisey Province were sufficient to provide an adequate commercial basis for the Kara Sea Route.(75) Furthermore, there were interesting possibilities for future development in this area. Under the right circumstances it could become a considerable import and export market since it was connected by water both with the Ob River system to the west and with Lake Baykal to the southeast.

During the late 1870s and early 1880s a few German merchants also took a serious interest in the Kara Sea Route. One of them was the Hamburg merchant Otto Bartning, but even more active was the Bremen entrepreneur Ludwig Knoop. During this initial phase he probably was, beside Sibiryakov, the one person who put most money into the Kara Sea Route. Knoop was a citizen of the free Hanseatic city of Bremen, but he was at the same time a Russian citizen. In Russia he had built up a very impressive enterprise, and by the middle of the 19th century he had obtained a controlling interest on the cotton market as well as in the textile industry. Knoop returned to Bremen in 1861, but he still spent a lot of time in St Petersburg and Moscow every year.

In connection with the Kara Sea Route Knoop established a commercial agency in Yeniseisk for marketing import goods and for purchasing export goods, especially wheat from the Minusinsk area. Knoop's steamer "Louise" (not to be confused with the above-mentioned "Luise") between 1878 and 1883 carried out voyages to the mouth of Yenisey under the command of captains E. Dallmann and E. Burmeister. However, many of these voyages were aborted. For the time being, it looked as

if nobody was able to operate even along the Yenisey route, and in 1883 even Ludwig Knoop gave in.(76) Two years later Alexander Sibiryakov followed suit. Sibiryakov later conceded that "shipping in the Kara Sea has great difficulties to contend with and therefore is not suitable for commercial use". The optimism created by the "Utrennyaya Zarya" had vanished and Russian entrepreneurs now withdrew from the Northern Sea Route, leaving the field open to foreigners, and notably to English traders. During the 1880s English merchants came to enjoy what might be seen as a virtual monopoly of the Northern Sea Route. Had Sidorov's friend, V.A. Popov, after all, been right when he warned of the danger that foreigners would take over the route once it had been opened?

The truth of the matter was that the Northern Sea Route was still not firmly established, and there was room for anyone who was prepared to take the risks. Nobody had so far been held back by the British, it was the ice and shoals that were the obstacles. And the British themselves soon had to give in. In 1887 a company was formed in England with the express purpose of trading via the Ob and Yenisey - the Phoenix Merchant Adventurers, a suitable name for a company that was to operate in the Kara Sea. Joseph Wiggins became the company's marine superintendant. At the request of the British Ambassador the Russian Government granted the company the right of duty-free imports. However, expeditions in 1888 and 1889 were unsuccessful, and led to the company being dissolved. Phoenix Merchant Adventurers was sold out to the Anglo-Siberian Trading Syndicate, owned by F.W. Leyborne-Popham. He too hired Wiggins. After another round of diplomacy, the Syndicate sent three ships to the mouth of Yenisey in 1890. Then in 1893 the Anglo-Siberian Trading Syndicate received an important commission from the Russian Government, to which we will return.

Leyborne-Popham's Siberian ventures have been regarded as the "most serious effort" to operate the Northern Sea Route between 1874 and 1912. However, after a series of losses, Leyborne-Popham was ruined and his syndicate dissolved in

1899.(77) From 1901-1910 the Kara Sea Route was not used for commercial shipping. The table below, drawn up by Leonid Breytfuss in 1907, shows firstly that the Kara Sea Route had seen only very limited commercial use since Wiggins and Nordenskiöld carried out the first successful navigations in 1874-76. It also shows that the percentage of unsuccessful voyages was very high; only 60 out of 87 voyages to the estuaries of the Ob and Yenisey actually reached their destinations, 22 had to turn back, and 5 were wrecked. Of those which set out from Siberia to Europe, 36 out of 42 arrived, while 6 were wrecked.

THE USE OF THE KARA SEA ROUTE IN 1874-1901

A: departed B: arrived C: turned back D: wrecked

	Voyages from Europe to Siberia				From Siberia to Europe		
	A	B	C.	D	A	B	D
1875	2	1	1		1	1	
1876	3	2	1		3	2	1
1877	4	3	1		2	2	
1878	9	7	1	1	6	6	
1879	10	4	6		6	2	4
1880	5	1	2	2	1	1	
1881	2	2			1	1	
1882	3	1	1	1	1	1	
1883	4	2	2		2	2	
1884	1		1				
1887	1	1					
1888	1		1				
1889	1	1			1	1	
1890	3	3			2	2	
1893	7	7					
1894	5	5			1		1
1895	4	4			2	2	
1896		2			4	4	
1897	12	12			8	8	
1899	5		4	1			
1900	1	1					
1901	1		1				
Total	87	60	22	5	42	36	6

Source: L.L.Breytfuss, "Morskoy sibirskiy put na Dalniy vostok", Russkoye sudokhodstvo 1904, nr.6, pp. 16-17.(78)

3.2.3 Development of logistics

These figures show that successful navigation of the Northern Sea Route was still completely dependent upon weather and ice conditions. The particular problems of navigation in the Kara Sea and the lack of any navigational aids such as detailed maps and charts, navigational markers, lighthouses and so on (see below), meant that insurance costs were extremely high. According to Krypton, prior to 1914 they could be as much as 15 % of the total value of the steamship.(79)

The considerable risk and the high cost of insurance repeatedly led the entrepreneurs to ask the Russian Government for the right to duty-free import of foreign goods to Siberia. The first time in the history of the Northern Sea Route that the government allowed duty-free imports was in 1876, when Nordenskiöld received permission to bring in such goods as textiles, sugar, salt, paper, glassware, and articles for the locksmith's trade, as well as agricultural and hunting equipment. Wiggins too enjoyed a good relation with the government, and in 1887, we have already seen, it granted the same privileges to Phoenix Merchant Adventurers.

This, of course, was not at all in keeping with the policy of protectionism which was adopted in the late 1870s, and the Council of Ministers received several petitions of protest. The committee of the Moscow Stock Exchange maintained that such preferential treatment should only be given to Russian citizens who undertook to import the goods on Russian vessels with Russian captains, and with Russian nationals making up at least half the crew.(80) This would have been more in line with the principles laid down for the Pomor trade with Northern Norway. The profitability of the Pomor cabotage fleet was based on Russian legislation which gave the common people of the Pomorye the right to duty-free import of Norwegian fish, as long as it was done on Russian vessels. This was an important concession by the Tsar to the population of the White Sea area in a period when the rest of Russia was surrounded by high protective trade barriers.

The problem, however, was that the Russians themselves were not in a position to plan an active part in the development of the Northern Sea Route. It seemed that Russia was still dependent on the maritime traditions of England and Norway to develop the Kara Sea Route, and the Russian Government was still prepared to give foreigners an incentive through permission to import certain limited categories of goods duty-free. It was, after all, easier to grant concessions to foreigners than to carry out the work needed to make navigation in the Kara Sea less problematic and to reduce the dangers.

And indeed, much remained to be done before the Kara Sea Route could be considered fully navigable. Innumerable tasks had to be completed, among them the sounding of the sea bottom, the compilation of detailed maps and charts, the erection of markers, the setting up of emergency refuges with stores of clothing and food, and the construction of freight storage warehouses at transshipment harbours. These measures were all listed in a report by Colonel S.A. Moyseyev in 1877 to the St.Petersburg section of the Society for the Encouragement of Russian Commercial Navigation. Moyseyev recommended that meteorological stations be set up at four points, and also proposed that the Gulf of Ob and its tributaries should be mapped and navigational markers placed at all the entrances to the Gulf of Ob, as most of them were hardly visible from the Kara Sea. Although the Yenisey was more accessible to ocean-going ships, Moyseyev also felt it was essential to chart Yenisey Bay and the river itself.

It would be wrong to say that the government turned a deaf ear to these recommendations. They were recognized as important, but not important enough to prevent the government from yielding to temptation, and postponing the implementation of even the most basic measures. Thus the government did not reject the Society for the Encouragement of Russian Industry and Trade's proposal for an expedition to the northern reaches of the Ob. On the contrary, preparations for the expedition were put in hand, and Colonel Moyseyev was involved in the

plans. A modest start was made in 1881 when the first field work got under way. However, the Ministry of Finance then announced that the programme would not be able to continue on the basis of state grants alone. The Siberian entrepreneurs likely to benefit from the programme should be prepared to bear part of the costs. The governor of Tobolsk was instructed to call a meeting of the local merchants from Tobolsk and Tyumen, and to ask them to take a more active part in the exploration of the Northern Sea Route.

The intention was to persuade the merchants of Western Siberia to take on the responsibility of carrying out a hydrographical survey of the Ob and the Gulf of Ob, in return for a government promise to explore the Kara Sea once the Ob survey was completed. The merchants answered that they were "not averse" to the Ministry of Finance's proposal, but that they were not prepared to pay for an expedition to the Ob before they knew for certain that the Kara Sea and the approaches to the Gulf of Ob were accessible on a regular basis.(82) This implied that the government should first explore the Kara Sea, and then come back to the Siberian merchants for funds to survey the lower reaches of the Ob. The outcome of these negotiations was that the hydrographical research programme was postponed indefinitely, and was only revived ten years later in connection with the construction of the Trans-Siberian railway.

Although there was no money to actually implement them, there was no shortage of sound proposals as to how to improve safety on the Kara Sea Route. One of these was a suggestion by Joseph Wiggins that every expedition be accompanied by special auxiliary vessels able to explore the route and lead the way through the Kara Sea and, in the event of need, to lend necessary assistance.(83)

A completely new opportunity was opened up when Rear Admiral S.O. Makarov secured a grant from the Ministry of Finance for the construction of an icebreaker for use in the Arctic Ocean. This marked a significant step forward in polar logistics, and Admiral Makarov was in fact the first to

propose an icebreaker service on the Northern Sea Route. An experimental ship, the 6,000 ton "Yermak", was built in Newcastle and in 1899 made her first voyage to the Spitsbergen archipelago. Another expedition was undertaken two years later to Novaya Zemlya and Franz Josef Land, but then the government decided to withdraw the "Yermak" from the Arctic Ocean for good and use her instead in the Baltic ports. "Yermak" suffered damage on these expeditions, and the Naval Minister and the Minister of Finance were not prepared to risk losing her in the ice.(84).

Makarov objected vehemently to their cautious approach. He maintained that it was wrong to give in on account of minor setbacks; as the Arctic Ocean was revealing its secrets only very slowly, it was necessary to work patiently and continuously over a long period in order to achieve significant results. But to no avail; the "Yermak" was never to plow the waves and ice floes of the Kara Sea. Pinkhenson suggests that the government's opposition to Makarov's scheme was the result of pressure from commercial and industrial circles in European Russia who stood to gain little from the development of Siberia. The lack of interest shown in St Petersburg for an icebreaker service in the Kara Sea may also have been connected with the fact that commercial voyages through the Kara Sea had come to a complete halt by 1901. There was as yet nothing for an icebreaker to escort, and navigation was not resumed for several years.

3.3 The Northern Sea Route and the North-East Passage

3.3.1 Nordenskiöld's voyage through Bering Strait

As we have already seen, during the late 1870s and early 1880s a number of Russian merchants and entrepreneurs took the lead in developing the Kara Sea Route, through which they hoped to provide an outlet to European markets for Siberian minerals and agricultural produce. On the other hand people like

Sidorov, Latkin and Sibiryakov were by no means obsessed with the idea of the Northern Sea Route as a through route, i.e. as a way to get from Western Europe to the Pacific. Even so, it would be wrong to say that this route was not a factor in Russian exploration. It did play a part, but the Russians saw the North East passage mainly as a means of developing the resources of Northern Siberia, and were less interested in the idea of a direct commercial route between Western Europe and Eastern and Southern Asia.

The Norwegian skippers' successes in the Kara Sea in the late 1860s and the publication of August Petermann's work on the Gulf Stream in 1870 gave impetus to Russian plans to send a comprehensive geographical expedition to explore Novaya Zemlya, and from there attempt the Northern Sea Route east to Bering Strait. The proposals were put forward by the two Russian geographers, A.I. Voyeykov and P.A. Kropotkin, with the intention of stimulating the Government's interest in the northern parts of the empire and of attracting attention to their natural resources, in particular fish, sea mammals and potential mineral resources. A reconnaissance expedition was to be carried by a Norwegian schooner, under the command of a Norwegian captain, and one of the tasks was to look for the land which Baron Schilling had recently conjectured the existence of.(85a)

The plans were presented to the government by the Imperial Geographical Society in 1870. However, this was the year of Grand Duke Alexey Alexandrovich's expedition along the northern coasts of European Russia, and the Grand Duke's former educator, Admiral K.N. Possiet (Posyet) who accompanied him during this expedition, was also a prominent member of the Council of the Geographical Society. As he was more in favour of exploring the Barents Sea he advised against the expedition to Bering Strait. This did not make it easier to secure state grants, and may have been one of the reasons why Kropotkin and Voyeykov's project was put on ice.(85b)

The natural resources of the areas adjacent to the Northern Sea Route were naturally of concern to Russian

scholars. However, at this stage there were very few western scholars who thought that there were economic advantages to be gained from the Northern Sea Route or other polar areas: "No one at the present day thinks any longer of the commercial value of the North-West and North-East passages. Modes of escape from the perils and caprices of the ice have grown out of the endeavour to discover routes of commerce, which lay beyond the reach of the cannon of the Spaniards at the time when they aspired to the monopoly of the trade of the world."(86)

Nor was there any hiding the fact that the shorter and cheaper route to India and China provided by the opening of the Suez Canal in 1869 took attention away from the Northern Sea Route as an alternative way east. Moreover, even though the coast line had been explored and surveyed by a combination of seaborne and overland expeditions, the North-East Passage itself had yet to be proved navigable. One of the aims of the Austrian Payer-Weyprecht expedition of 1872-74, was to navigate the whole length of the passage, approaching it from the presumably open waters which were thought to exist to the north of Novaya Zemlya. The plan was to spend the first winter at Cape Chelyuskin, and then continue the investigation of that part of the Arctic Ocean the following summer. During the expedition's third summer they hoped to be able to make their way along the Northern Sea Route to Bering Strait and thence to a port in Asia or America. While in Tromsø the Austrians hired Elling Carlsen as ice-pilot. Nonetheless, only a few hours after Count Wilczek had left them on the western coast of Novaya Zemlya, the "Tegethoff" was caught fast in the ice, never to get free of it again. Instead of navigating the Northern Sea Route they drifted with the ice in a generally north-western direction until they became stranded on a hitherto unknown Arctic archipelago, which they named Kaiser Franz Josef Land, after the Austrian-Hungarian Emperor.

Although Nordenskiöld was aware of the commercial possibilities of this route, the main motive for his great expedition of 1878-79, in which he became the first to

actually navigate the Northern Sea Route from end to end, was scientific discovery. After his unsuccessful attempt to reach the North Pole in 1872-73, he gave it up as an alluring but for him unattainable destination, and accepted the general opinion that it would only be conquered at some future date by airships. From that time on Nordenskiöld dedicated himself to the Northeast Passage. He had no doubt been toying with the idea for some time, but he now made it his first priority.

Nordenskiöld was born and brought up in the Grand Duchy of Finland. Although as a student his attitude towards Russia was complex for obvious political reasons, his relationship with the Russian authorities improved, as we have seen, in later years. In his early twenties Nordenskiöld spent the winter of 1854-55 in the Urals as an assistant to his father, who was a well-known mineralogist, and his interest in Siberia probably dates from this period. Two years later he applied for a grant from the University of Helsinki to organize a small geological and mineralogical expedition to Siberia.(87) Nothing came of these plans, but they probably sowed the first seeds of his awareness of the attractions of a Northern Sea Route to Siberia. This awareness was to be further stimulated by the achievements of the Norwegian sea mammal hunters.

In 1868 Nordenskiöld met Sidorov for the first time (see above). This meeting in Tromsø was by no means just a social event, and half a year later Sidorov submitted to the Imperial Geographical Society plans to send a joint Russian-Norwegian-Swedish expedition to the estuaries of the Ob and Yenisey. The expedition was to be led by his good friend, professor Nordenskiöld.(88) The Geographical Society decided that the time was not right for such an undertaking, which would involve a great deal of expenditure and be of little practical use. As we have already seen, six years later Nordenskiöld organized a voyage to the Yenisey on his own account, but for him the Kara Sea Route was only a first step towards his real ambition of navigating the North-East Passage.

Nordenskiöld always maintained that the purpose of his great expedition was to carry out a scientific investigation

of the coastal areas of northern Siberia, which were still among the most unknown parts of the Arctic. But he was almost certainly also inspired by national pride and an ambition to see Sweden play a more prominent role on the world stage - through science. He may also have been influenced by the idea of the specifically northern identity and character of the Scandinavians, a popular idea in Sweden at the time. In the 18th century Sweden had achieved quite a reputation for science, mainly due to the great botanist Carl von Linné, whose disciples went to every corner of the earth and returned with extensive scientific collections or "died as martyrs of science far from home".(89) Torell's and Nordenskiöld's expeditions to Spitsbergen in the 1860s marked the beginning of a new surge of scientific research in Sweden, and it was generally acknowledged that these expeditions had strengthened the concept of Sweden as a nation "in the service of science".

The golden age of Swedish polar research was to last for about 50 years, and was seen as a continuation of the "Linnean tradition", but on a much grander scale. The Swedish historian Urban Vråkberg has recently drawn attention to the way in which polar expeditions came to be seen as a uniquely Swedish way for both scientists and contemporary society as a whole to demonstrate their prowess on the international scene. Sweden as a Great Power may have been a thing of the past, but the Swedes could still be players in the peaceful but competitive international quest for new discoveries in the unknown areas of the polar regions.(90) Thus in the plans for the new expedition which Nordenskiöld submitted to the Swedish King in July 1877, he pointed out that every mile beyond the estuary of the Yenisey would be a step forward in the exploration of the Earth, "a goal that must be attained at some time be it by greater or lesser sacrifices, and one to which it is a matter of honour for every cultured nation to contribute to the best of its ability".(91)

It was no accident that the remarkable "Vega" expedition was organised in Sweden. In this connection Vråkberg points

out the importance of public opinion as a factor in raising funds. Such a large-scale polar expedition as this required more money than was available to any scientific institution, and polar research was therefore dependent on the enthusiasm and support of other private organisations and state bodies. Vråkberg also emphasizes the fact that the continuity of Swedish polar research in itself had resulted in the development of an efficient and safe system of travelling and living in the polar regions. Sweden was certainly much better placed than Russia when it came to organizing this great enterprise. In Russia popular support for polar expeditions was not yet widespread, although some, notably Mikhail Sidorov and Alexander Sibiryakov were willing and able to make a significant contribution to the exploration of the Northern Sea Route. By the late 1870s Sibiryakov was the only one left on the scene. He decided to back Nordenskiöld, not only, it is suggested, because of his personal abilities, but also because the experience and continuity of Swedish polar research was the best guarantee of success.

After the "Ymer" expedition of 1876 Sibiryakov placed considerable means at Nordenskiöld's disposal "for further investigations in the Siberian Ocean". However, these were not sufficient for an attempt to sail all the way to the Pacific, and Nordenskiöld himself was not very optimistic about the possibility of official Swedish support for his new expedition. However, in January 1877 he was invited to the Royal Palace in Stockholm together with others of importance who were also interested in Arctic exploration and science. King Oscar II, who had served in the Swedish Navy in his youth and was himself a great supporter of polar exploration, now promised that he would use his royal influence to ensure that government grants would be forthcoming. He also promised to make a contribution from his own private means, and Oscar Dickson was, as always, ready to contribute his share. Soon after this meeting the financial foundation for Nordenskiöld's navigation through Bering Strait was laid. In terms of cash contributions, Oscar Dickson again provided the lion's share

at 62% of the total costs, Alexander Sibiryakov gave 15% and King Oscar II 10%. The Swedish Treasury in addition to fitting out the vessel contributed a further 13%. The sums advanced amounted to 710,000 Swedish crowns.(92)

Sibiryakov insisted that the commercial aspects of the voyage should not be neglected, and he financed the building of a small steamer, the "Lena", which was to sail up the river Lena to Yakutsk and later operate as a steamer on the Lena. He also chartered two other ships, the steamer "Fraser" which he had sent to Yenisey for the first time in 1877 under captain Dallmann, and a sailing vessel the "Express", to carry cargoes of nails, tobacco, salt, petroleum and other merchandise bound for the Yenisey. The return cargo was to be mainly grain, and in the outward voyage these vessels were to carry coal and supplies for the expedition.(93) Sibiryakov also persuaded Nordenskiöld to enlist a Russian mining engineer, S.I. Serebrennikov, among the crew.

For this historic mission Nordenskiöld acquired a 357 tons steamer, the "Vega", built in Bremerhaven in 1872-73 as an Arctic whaler. By the standards of her time the "Vega" was a powerful and well-fitted out ship, and no opportunity of further improving and adding to her equipment was missed.(94) Nordenskiöld made every effort to bring his information about the Northern Sea Route up to date by writing to anyone who might have information about the state of the Arctic Ocean along the northern coast of Siberia and Sibiryakov acted as his intermediary, contacting merchants, government officials and priests in the area. Nordenskiöld also got information about the American end of the route from sources in the American navy.

It was thus a very well prepared expedition which sailed on the "Vega" and "Lena" from Tromsø on July 21 1878, accompanied by Sibiryakov's two vessels, and also by a number of ships chartered by Ludwig Knoop. All the vessels were bound for the Yenisey, and this first leg of the voyage passed entirely without incident. But having left the other ships behind at the Yenisey, the "Lena" entered unknown waters. No

ocean-going vessel had ever navigated the distance between the Kara Sea and the estuary of the Lena. The northernmost point of Eurasia, Cape Chelyuskin, had only been charted from the landward side. This came to be known as the most difficult point on the Northern Sea Route. The reputation for impassability that had earlier attached to the entrance to the Kara Sea was now reserved for Cape Chelyuskin, which was certainly more deserving of it (see part 2).

The "Vega" and "Lena" encountered heavy fog and the able commander of the "Vega", Lieutenant Louis Palander of the Royal Swedish Navy, was forced to hug the northwest coast of the Taymyr Peninsula taking frequent soundings and making slow but steady progress. However, the inshore waters of the Taymyr Peninsula were almost icefree, and the "Vega" and "Lena" reached Cape Chelyuskin without difficulty and anchored there on August 19. Fog and drift ice prevented Nordenskiöld from either exploring the waters to the north, which would have led him to discover the vast archipelago of Severnaya Zemlya, or from proceeding due east to the New Siberian Islands and investigating the possible existence of land in the seas between. Instead he was forced to turn south along the eastern coastline of the Taymyr Peninsula.

On August 28 the two ships parted at Tiksi on the estuary of the river Lena. The "Lena" sailed south to the city of Yakutsk and became the first ship from Western Europe to penetrate deep into the heart of Eastern Siberia from the north. It took Captain Hans Christian Johannesen just two weeks to reach Yakutsk, even though he had to manage without a river pilot. The "Lena" was laid up in winter quarters outside Yakutsk.(95) Captain Johannesen's achievement was indeed remarkable, and Nordenskiöld concluded from the success of the "Lena"s voyage that the sea route between Europe and the river Lena was indeed navigable as a trade route, even though vessels from Europe would have to overwinter on the Lena.(96)

By September 8 1878 the "Vega" was only five hundred miles from Bering Strait, but was making slower and slower progress. On the 27th of September they anchored to a large

ice floe at the eastern entrance to Kolyuchin Bay, the last big inlet on the coast before Cape Dezhnev, the entrance to Bering Strait. Though so close to his goal, Nordenskiöld was forced to overwinter there with his crew, at lat. 67° 7′ N., long. 173° 30′ W. However, science benefitted from his misfortune; from September 1878 to July 1879, in one of the least accessible regions of the earth, a well-equipped scientific staff was fully active, and made uninterrupted observations of the weather, terrestrial magnetism, the aurora borealis, as well as the conditions of life of the native Chukchi. The "Vegas's" wintering off the north coast of Chukhotka produced an overwhelming amount of scientific data.

Though this is not the place to analyse the scientific data from the "Vega" expedition, their significance is indicated by the fact that the accuracy of the astronomical and hydrographic observations necessitated the remapping of the entire coastal region of northern Siberia. Edwin Okhuizen especially emphazises major improvements in the determination of longitudes. This was most obvious when looking at the position of the Taymyr Peninsula. The route actually followed by the "Vega" was drawn in on the map carried on board which had been issued by the Hydrographic Department of the Russian Naval Ministry as recently as 1876. Along the east coast the ship's route seems to be over land, illustrating the fact that the peninsula had been drawn in too far to the east on the Russian map. More detailed maps, however, were only drawn of regions where the expedition stayed for a longer period, such as Dickson Island and the Taymyr Island, situated off the northwest coast of the Taymyr Peninsula. The previously unknown islands to the east of Taymyr Island were later named the Nordenskiöld Archipelago.(97)

During the summer of 1879 the "Vega" was able to sail on and she passed through Bering Strait on July 20th 1879 to successfully achieve the main objective of the expedition. After a search which had lasted for more than 300 years the North East passage had at last been navigated. Nordenskiöld's success had been helped by the Norwegian hunting expeditions

to the Kara Sea, and also by the Russian efforts to open a commercial sea route to the Ob and Yenisey. The third factor was the high standard of Swedish polar research, of which Nordenskiöld himself was the most outstanding representative.

But it should not be forgotten that as fas as the development of the North East passage as a commercial shipping route was concerned, the immediate practical consequences of Nordenskiöld's navigation through to Bering Strait were not very important. That Nordenskiöld himself was quite aware of this is shown by his report to the Swedish Academy of Sciences in April 1879 while the "Vega" was still in winter quarters. He concluded from his voyage that it was indeed possible for a suitable steamer with an experienced crew to cover the whole route from the Atlantic to the Pacific in a few weeks, and that the "Vega" herself could easily have done it if her progress had not been slowed by numerous scientific duties. However, because of the general conditions in the Arctic Ocean he doubted whether the route would be of any importance for world trade. Nordenskiöld was more optimistic about the prospects for a commercial sea route between Europe and the Ob and Yenisey, and even between Europe and the Lena, though he was less sure about the latter. Only further investigation would show whether there was a viable sea route between the Lena and the Pacific, but he foresaw the possibility of bringing in by sea steamships, heavy equipment and other goods that could not be carried overland.(98)

3.3.2 The Trans-Siberian railway and its effect on the Northern Sea Route

Sadly, Nordenskiöld's "Vega" expedition of 1878-79 was the last along the Northern Sea Route for many years to come. No other explorer was prepared to follow where they had led, and it was not until 1932 that the Soviet icebreaker "Sibiryakov" achieved the first navigation of the whole route in one season (see part 4). Nor was there any repetition of Hans Christian Johannesen's voyage to the river Lena; in fact the first

freighter reached the Lena from the Pacific only in 1927, and the route from the Atlantic was not successfully navigated again until 1933. The "Vega" expedition probably resulted in increased use of the Kara Sea Route, but it was certainly not a breakthrough. The Russian authorities took an active part in the development of this route only from the beginning of the 1890s. This new interest in the Kara Sea Route was mainly brought about by Tsar Alexander III's decision to build a railway from European Russia all the way through Siberia to the Far East, the Trans-Siberian Railway.

At first glance one would assume that in offering a new means of transportation across Siberia the Trans-Siberian railway would draw the focus of attention away from the Northern Sea Route. This was not what happened. On the contrary, the new railway made the Northern Sea Route more rather than less topical. However, it must be pointed out that at this stage, the government's purpose in developing the Northern Sea Route was not primarily to strengthen Russia's control of its northern areas or to develop their resources. The primary aim was to strengthen Russia's grip on the Far East, and the government saw the Northern Sea Route as above all an auxiliary route.

One of the reasons for the Russian Government giving priority to the Far East rather than the "Far North" seems to have been that at that point in time Russia had no serious rivals in the north, whereas towards the end of the 19th century the major European powers and Japan were all very actively advancing their claims in the Far east. Russia needed to consolidate its position in the Far East without delay. However, it would be impossible to carry out Russian policy in the region using only local troops, since they were almost completely cut off from Central Russia and their main military supply bases. Sergey Witte, Russia's Railway Minister and from 1892 Minister of Finance, was keen to promote the economic penetration of China, and argued that the railway would decisively strengthen the Russian Pacific Navy, and give Russia "domination over the entire international trade

movement in the waters of the Pacific Ocean".(99)

The decision to build the Trans-Siberian railway was made in 1891, and this gigantic undertaking was to become a heavy burden on the Treasury, even though the project was to a large extent financed by French capital. There was great pressure to complete the railway without delay, but delivering the sleepers, rails and rolling-stock to the different sectors of the proposed line on schedule was a major problem. Construction materials were brought to the Urals overland and by river, and to the ports of the Far East via the Cape of Good Hope or the Suez Canal. But the insurmountable problem of delivering materials in the roadless terrain in between prompted those involved to look again at the Northern Sea Route. The whole question of auxiliary transport was in the end submitted to the Russian Naval Ministry for consideration. As a result of this the Naval Minister N.M. Chikhachev proposed a whole range of measures among which was a proposal to examine the possibility of buying materials for the railway in England, shipping them across the Kara Sea and bringing them nearer to the construction sites via the Yenisey River.

Although the Special Conference for the Construction of the Trans-Siberian Railway supported the Naval Minister's proposal, extensive hydrographical and cartographic investigation was required before the route could be used on a regular basis. As we have already seen, such work had been hitherto neglected. The government voted funds to equip a cruiser for hydrographical exploration east of the White Sea, to gather the information needed for a proper evaluation of the sea route.(100) Chikhachev's memorandum stressed the great need for both exploration and surveillance of the Northern Sea Route, as Russia's control over the area could not be guaranteed under existing conditions:

> In past years, during the last century and the first half of the present century, we ourselves were far more enterprising in this regard. But in recent years, the English and Norwegians have been the chief promoters of the idea of establishing communication with Siberia. We are morally bound to take this matter into our own hands and to deal with it in proper fashion.(101)

The cruiser was also supposed to supervise the activities of the Norwegian hunting vessels around Novaya Zemlya and in the Kara Sea. It is clear, however, that concerns about Russia's control of her northern waters was of secondary importance, and would probably not have been addressed for a long time had it not been for the Trans-Siberian Railway.

The import of railway materials from abroad was not exactly in keeping with the prevailing protectionist mood at the Ministry of Finance. However, anything was permissible if it speeded up the construction of the Trans-Siberian Railway, and even the job of transporting the railway equipment was given to English contractors. The Russian authorities contacted Joseph Wiggins, who was in any case planning a voyage to the Yenisey on behalf of Francis Leyborne-Popham. A company, Wiggins' Siberian Expedition, was formed in England with Captain Wiggins as director, and the first cargoes of rails were shipped in the summer of 1893.(102) The Committee of the Siberian Railway also asked Wiggins to escort a Russian expedition of four vessels, three of which had been built in England for the Yenisey river fleet specifically to transport the rails further up river to Krasnoyarsk. The expedition was led by Lieutenant L.F. Dobrotvorskiy and the crews were from the Kronstadt naval base. Most significantly the four ships were flying the Russian naval ensign by special permission of the Naval Ministry.

The two expeditions rendezvoused at Vardø in the beginning of August 1893 before proceeding eastwards. Although there were several incidents and various organizational problems and the cost were disproportionately high for the number of rails actually delivered, the Naval Ministry and the Committee for the Siberian Railway considered the 1893 expedition a success.(103) But in spite of this, the shipping of freight across the Kara Sea then came to a halt. The main reason seems to have been the violent opposition from both the government and leading industrialists to the import of railway materials from abroad. The Committee of the Trans-Siberian Railway and the Ministry of Finance now committed themselves

to building the railway with Russian-manufactured materials, even though rails could have been bought abroad for half the price or less. This move was an important concession to the iron and steel industries of Southern Russia,(104) but it meant that the Northern Sea Route would no longer be used to speed up the construction of the Trans-Siberian Railway.

Out of all the funds allocated to the construction of enterprises auxiliary to the railway, no more than 1,5% was spent on developing the Northern Sea Route. Nevertheless this was quite a significant sum compared to what the Russian Government had invested in the route to date. The British and Russian expeditions to the Yenisey in 1893 had clearly stimulated the Naval Ministry's interest in the Northern Sea Route and it sent further hydrographical expeditions, led by A.I.Vilkitskiy to the mouths of the Ob and Yenisey from 1894-96. As a result of these four consecutive hydrographical expeditions a completely new map of the coast around the Ob and Yenisey was drawn up. In addition 27 new astronomical points were defined, sufficient material was gathered to produce pilot map for the section of the Arctic Ocean from Dickson Island to Belyy Ostrov, new maps were drawn up for vast areas of the Yenisey, the Yenisey Bay and the Gulf of Ob. It was finally confirmed, that the shallow bars in the estuary of the river Ob meant that large ocean-going vessels would never be able to enter the river itself.(105)

When next the Russian Government decided to use the Kara Sea Route, during the Russo-Japanese War (1904-1905) this information was all very useful indeed. Most of the supplies for the Russian army in the Far East were sent by rail during the war, which meant that the Trans-Siberian Railway was working under enormous pressure. As during its construction in 1893 the Kara Sea route was now used to relieve pressure on the Trans-Siberian Railway, and also to deliver construction materials for the western section of the railway itself, which was now being given a second track. A special conference on March 28 1905 under the chairmanship of the Minister of Transportation, M.I. Khilkov, passed resolutions to transport

rails, cement and engine oil from Russia's Baltic ports across the Kara Sea to the Yenisey, and at the same time to escort a whole flotilla of river vessels to the Yenisey to strengthen the river fleet. Both resolutions were approved by Tsar Nicholas II, and Commodore I.C. Sergeyev was appointed as leader of the expedition. The government leased four large British merchant vessels to ship the railway materials from Russian ports on the Baltic, and once again asked Joseph Wiggins to help in organizing the expedition, the biggest yet to sail across the Kara Sea. Unfortunately Wiggins fell ill and could not take part in the expedition himself. He died in September 1905.(106) A total of seven steamers and tugs, with nine lighters in tow completed the voyage, bringing 12,000 tons of cargo safely to the Yenisey, in spite of all the usual dangers.

Vilkitskiy's hydrographic expeditions of 1894-96 had certainly been a great step forward in terms of improving the Kara Sea Route, but much remained to be done, and as yet scant attention had been paid to the waters east of the Yenisey. The idea of a through route from European Russia to the Far East was not in vogue, and between the "Vega" expedition of 1878-79 and the Russo-Japanese War this region of the Arctic was basically seen as an arena for international science. It is worth remembering at this point that neither G.W. De Long's (1879-81) or Fridtjof Nansen's (1893-96) expeditions were specifically planned to either explore or develop the Northern Sea Route. Both these expeditions were attempts to reach the North Pole, with De Long using Wrangel Island and Nansen the New Siberian Islands as stepping-stones (see part 2).

De Long's vessel the "Jeannette", was wrecked in 1881, but a number of objects belonging to her or her crew were found three years later on an ice-floe near the south-west coast of Greenland. This finally convinced Fridtjof Nansen of the existence of a current running across the polar region from the waters to the north of Siberia and Bering Strait, across the Central Arctic Basin and out into the sea between

Spitzbergen and Greenland. The ice was carried by this current along a clearly definable route, and therefore the most natural way of crossing the unknown region, according to Nansen, was "to take a ticket with this ice" in other words to pick up the current where it ran northward, and let it carry you straight across the North Pole.(107)

And so it was that in 1893 Nansen set off in the "Fram" to the New Siberian Islands, with the aim of drifting across the Arctic Ocean in an attempt to reach the North Pole. Just as Nordenskiöld's "Vega" expedition had made no attempt whatsoever to challenge Russian supremacy in the regions adjacent to the Northern Sea Route, Fridtjof Nansen was not out in any way to defy Russian sovereignty over its possessions in the eastern Arctic. If the "Fram" expedition had any political implications, it was to challenge Swedish predominance in polar research in an attempt to defeat the Swedes in the scientific arena. In Norway, as have been pointed out by i.a. Tor Bomann-Larsen, Nansen's achievement was widely interpreted as a striking blow against Sweden, and represented another important step towards the dissolution of the Norwegian-Swedish Union (1814-1905) and the declaration of Norwegian independence. "The 'Fram' was the flag ship of Norwegian liberation".(108)

The Russian authorities, however, were not aware of the nuances of the internal Norwegian-Swedish feud, and even if they took part in the general acclaim of Nordenskiöld and Nansen's achievements, they viewed the increasing activity of Scandinavians in these distant outskirts of the Russian Empire with some alarm. International interest in the Arctic was increasing considerably at that time, and other countries such as England, Germany and the Netherlands were becoming involved in scientific research in Russian waters, mostly in what was known as the western sector of the Russian Arctic. This forced the Russians into pursuing a more active policy themselves and deciding whether their country wanted to safeguard what were generally considered as Russian possessions. This new attitude found expression in a greater interest in the exploration of

the Arctic and also in the development of the Kola Peninsula. 1898 saw the inauguration of the organisation known as the "Murman Scientific-Economic Expedition", and in 1899 a new administrative centre was founded at Aleksandrovsk (now Polyarnyy) on the Kola Fjord. This was the most notherly port in the Russian Empire, though at the same time the only one that was free of ice all the year round.

Baron Eduard von Toll, a Russian geologist of Baltic-German origin, also benefitted from these territorial anxieties when in 1899 he succeeded in securing funds for a major Russian expedition to the New Siberian Islands. The fact that von Toll personally was on very good terms with the Scandinavian polar explorers was not held against him; he had actually given Fridtjof Nansen considerable assistance in organizing the voyage to the New Siberian Islands in 1893. The Russian Government made a grant of 180.000 rubles towards von Toll's expedition, and in 1900-1902 he led the first Russian sea-borne expedition along the coastline to the east of the Yenisey. He was charged with carrying out "a most comprehensive scientific survey of the regions between the eastern coast of the Taymyr Peninsula, the New Siberian Islands and the islands, which are situated even further to the north".(109) (See also part 2) The Russian Minister for Foreign Affairs, V.N. Lamsdorff, in a letter to the Naval Minister of February 9, 1901 confirmed that government backing for Toll's expedition was partly motivated by a desire "to strengthen Russia's sovereignty over the archipelago of New-Siberia and a determination not to hand its natural resources over for the uncontrolled exploitation by enterprising foreigners."(110)

3.3.3 The Russo-Japanese War and the potential military and strategic importance of the Northern Sea Route

Despite Russian officialdom's increasing interest in the Arctic towards the end of the 19th century, up until the outbreak of the Russo-Japanese War promotion of the Northern

Sea Route was left mainly to private initiative and voluntary organizations. In 1901 the great Russian chemist, D.I. Mendeleyev, drew up a comprehensive plan for the exploration of the Northern Sea Route. He not only emphasized the economic potential of Northern Siberia and the fact that it could only be developed by improving shipping routes, but he also mentioned the possibility of transferring ships of the Russian navy from the Atlantic to the Pacific Ocean via the Arctic.(111) This is one of the earliest recorded mentions of the potential military and strategic importance to Russia of the Northern Sea Route. However, as early as 1897 S.O. Makarov had drawn the attention of the Naval Minister to the possibility of tranferring units of the Russian fleet to the Pacific across the Arctic Ocean and Mendeleyev was now working in close collaboration with him. At this stage, however, the Russian Government turned a deaf ear to their proposals.

It was only during the Russo-Japanese War that the government's attitude changed. With the outbreak of war the question of transferring units of the Baltic fleet to the Far East became a matter of urgency, and was discussed in both the Russian and foreign press. The Russian Society for Navigation asked the oceanographer L.L. Breytfuss, the head of the Murman Scientific-Economic Expedition, to produce a report on the future of the Northern Sea Route, and this Breytfuss did, reading his report to a meeting of the society on March 19, 1904.

This was the first truly systematic report on the question that had been produced, and Breytfuss used all the data from the Arctic and Kara Seas that had become available since the 1870s. He pointed out that Sidorov's dream of establishing the Kara Sea Route had not been fulfilled, and said that while so little was known about the coast of Siberia and the Arctic Ocean, the Northern Sea Route could not be regarded as an attractive proposition, either by commercial shipping, or by the Navy - as a viable way of transferring fleet units to the Far East. There was much to be done. First the various legs of the route had to be equipped with

telegraph, safe harbours and coal depots, and just as importantly buoys and beacons were needed for the waters and the coast. It was also necessary to make charts of the 3,000 kms of coastline. Although admitting that the Northern Sea Route could not be of much immediate use, Breytfuss maintained that sooner or later it would become of great importance both in the development of Siberia and as a route between European Russia and the Far East. He recommended that exploration should start as soon as possible.(112)

The Society for Navigation therefore established a commission under the chairmanship of A.I. Vilkitskiy to bring matters forward. The Vilkitskiy Commission worked out a scheme whereby three research groups, each on two vessels, were to investigate the Northern Sea Route to the east of the Yenisey, one from Dickson Island eastwards, the other both east and west from the Lena River, and the third from Cape Dezhnev westwards. Because of the war, however, it was out of the question that the government would make the necessary funds available. All the Society could do was to ask the Tsar's blessing to collect money from private individuals who might want to support this noble cause.

The possibility of transferring naval vessels to the Far East via the Northern Sea Route was also being discussed in military circles. So far the Russian Government had had no choice but to send Russian naval units to the seas around Eastern Asia via the Cape of Good Hope, and was dependent on the continuing goodwill of neutral countries along the way. It was an extremely long way round (c. 20,000 km) and fraught with all the difficulties of international politics. It was obvious that Russia would benefit greatly from having a sea route that followed her own coasts all the way, as this would solve all supply problems en route and bypass the complexities of foreign affairs. And this route would have been only half as long.

Even so, the idea of actually sending fleet units from the Baltic to the Far East via the Northern Sea Route was soon dropped as unrealistic. Pinkhenson points out that during a

meeting in the presence of the Tsar on 10 July 1904, which considered among other things the problem of sending the Baltic fleet to the Far East, the Northern Sea Route was not even mentioned.(112b) Instead it was sent by way of the Cape of Good Hope under the command of Rear Admiral Z.P. Rozhestvenskiy. Ten months later it finally reached its destination, only to be sunk by the Japanese in Tsushima Strait on May 27 1905.

After Russia's defeat in the war with Japan the government finally recognized that the development of the Northern Sea Route could no longer be left in the hands of benevolent organizations or voluntary scientific societies. It had now become a major concern of the government, which was to play an increasingly active role. The Naval Ministry took over the initiative, and in June 1906 the Naval Minister A.A. Birilev wrote that it was necessary "to clarify once and for all the question of the usefulness to us of these [northern] possessions in general and the passage this way to the Pacific Ocean in particular".(112c) A commission was set up under Admiral V.P. Verkhovenskiy, "to look into the question of continued hydrographical work in the Arctic Ocean".

The commission agreed that an expedition was needed to study the route to Bering Strait via the Arctic Ocean, and emphasized "the enormous commercial and strategic importance that this route may have, being the shortest way from European Russia to our possessions in the Far East". After having reviewed the experiences of earlier expeditions the commission came to the conclusion that it would in fact be possible to transfer ships from the White Sea to the Pacific; "the only thing we lack is knowledge". The conclusions and recommendations of this authoritative commission were actively supported by various people of influence, and in his report to the Tsar the Naval Minister described the Northern Sea Route as "an affair of state of the highest importance", since it might open the way to tranferring "our armed forces in some 9-10 days to the Pacific Ocean".

In April 1907 Nicholas II gave the Imperial assent to

releasing the first funds for the Arctic Hydrographic Expedition (1910-1915). It was decided to build two identical steel hulled icebreakers, and the expedition's main purpose was to compile accurate charts and sailing directions for the section of the Northern Sea Route to the east of the Yenisey. The twin icebreakers, "Taymyr" and "Vaygach", identical in every respect, were ready to sail by 1909, and the original plan was that the studies of the route should start from the west.(112d) However, this plan was soon changed.

3.3.4 The development of the Northern Sea Route from the east

A clear indication of the general public's increasing interest in the polar regions is that no less than three separate privately financed Russian polar expeditions set out in 1912, and that two of them were attempts to sail the Northern Sea Route. However, ice conditions in 1912 were very bad, and all the expeditions got into serious trouble.

Having lead several expeditions to Novaya Zemlya between 1907 and 1911, the famous geologist and polar explorer V.A. Rusanov was appointed leader of a state sponsored expedition to Spitsbergen in 1912. Rusanov's expedition set out on the "Gerkules" to carry out research and also on the instruction of the Ministry for Foreign Affairs to take possession of coal fields. The main purpose of this expedition was to strengthen Russia's hand in the Oslo negotiations on Spitsbergen's international status (1910-14), and "give an impetus to the establishment of de facto Russian interests on Spitsbergen, and also persuade our hunters to go there to exploit the natural resources of the island."(113)

Having successfully fulfilled his mission on Spitsbergen, Rusanov set off for Novaya Zemlya, from where he sent a telegram informing the Russian authorities that he intended to sail round the north of Novaya Zemlya and continue "eastwards". Rusanov obviously hoped to navigate the Northern Sea Route to Bering Strait and thus fulfill a lifelong dream; Rusanov "had at all times and everywhere he went dreamt,

thought and prepared for the voyage along the Northern Sea Route", writes M.I. Belov. Why Rusanov kept his plans so secret will never be known for sure since he and all of his crew perished, probably somewhere in the Kara Sea.

In the same year another Russian expedition under Lieutenant G.L. Brusilov on the "Svyataya Anna", also heading for Bering Strait, disappeared in the Kara Sea. At approximately the same time lieutenant G.Ya. Sedov set off from Novaya Zemlya for Franz Josef Land with the intention of trying to reach the North Pole with a dog team. In his application for leave from the Russian Army Sedov wrote that he would try to beat Roald Amundsen to the North Pole, "because the honour of such an achievement should belong to Russia, not to Norway".(114) He did not change his plans when he later learned that an American, Robert E. Peary had indeed reached the North Pole in 1909 and that Amundsen instead had gone south to conquer the South Pole. Sedov's expedition also vanished into the icy wastes.

When it became known that all three expeditions had disappeared, members of the Imperial Geographical Society proposed sending out a rescue expedition, but it was not until early 1914 that the Council of Ministers yielded to mounting pressure and sent expeditions to search for the Sedov, Brusilov and Rusanov expeditions. The Naval Ministry decided to ask the Norwegians to help organize it. Leonid Breytfuss, who had many contacts among Norwegian polar explorers, went to Norway in person to organize the rescue mission. To ensure that the whole operation should not become an embarassment to Russia, the "Hertha" and "Eclipse" which had been bought in Norway, were to fly the Russian flag when they sailed for Russian waters in the summer of 1914. Two other vessels, the "Andromeda" and "Pechora" had been chartered in Northern Russia and were also involved in the search.(115)

The "Hertha", under a Russian captain, the hydrographer and meteorologist I.I. Islyamov, set out to search for Sedov's expedition and went first to the west coast of Novaya Zemlya, from where she turned north to Franz Josef Land. Although

unable to find any trace of his crew, they seized the opportunity to hoist the Russian flag on Cape Flora, thus "depriving" Austria-Hungary of Franz Josef Land and claiming it for Russia.(116) Meanwhile the "Eclipse", under the veteran Norwegian polar explorer Otto Sverdrup, was to search for the Brusilov and Rusanov expeditions. The rescue missions did't find anyone from the Sedov and Brusilov expeditions, but a few survivors managed to get back to Archangel on their own. However, no trace was ever found of Rusanov's expedition. The "Eclipse" was forced to winter at the Tillo Islands, a little to the west of Cape Chelyuskin, and during that winter was quite by chance able to be of assistance to the Great Russian Arctic Ocean Hydrographic Expedition, which was making its way along the Northern Sea Route from Bering Strait.

When the project of building the "Taymyr" and "Vaygach" had first been proposed, it was intended that they should approach the Northern Sea Route from the west. However, while the icebreakers were still under construction at the Nevskiy ship yard in St Petersburg, disturbing reports from the Far East led to a change of plan. Following the Russo-Japanese War the balance of power in the Far East had changed radically. The Russian fleet was in tatters, and the provincial government was concerned at increasing foreign penetration into the regions of Chukhotka-Yakutia in northeast Siberia. North American whalers operated freely along the coasts of the Chukhotka Peninsula and carried on a flourishing trade with the Chukchi and Eskimos, while the Russians were reduced to doing all their trading via the almost trackless terrain on the landward side. All in all there was a burning need for measures to protect Russian possessions in the Far East. A special conference, convened in Irkutsk in 1906 under the chairmanship of the Governor-General, examined all aspects of Siberia's transport requirements, and emphasized the need for faster links between the Russian ports in the Far East and Nizhnekolymsk on the estuary of the river Kolyma.

The provincial government considered that the opening up

of a sea route to the rivers Kolyma and Lena was the most urgent task. The Council of Ministers, acknowledging that Russia might well lose control over its old possessions in the area, reacted quickly to this proposition and decided to try to connect these points by sea. It reversed the previous plan, so that the Arctic Ocean Hydrographic Expedition would now start its work from the east.(116b) In order to show the Russian flag in the Far East as soon as possible the new icebreakers "Vaygach" and "Taymyr", each of 1,200 tons displacement, were sent through the Suez canal. They carried out their first expedition to the Kolyma in 1911.

In 1908 the government had also announced an 80,000 ruble subsidy to any privately owned ship making a regular annual return from one of the Russian Pacific ports to the estuary of the Kolyma. After various delays the first vessel to take advantage of the state subsidy turned out to be the steamship "Kolyma", formerly registered in Norway as the "Prosper", and in July 1911 she sailed from Vladivostok under the command of Rear Admiral P.A. Troyan. The voyage was a success and the "Kolyma" returned to Vladivostok on September 17, 1911. Although the subsidy was reduced after 1912, such voyages continued in the years to follow.(117)

The work of the Arctic Ocean Expedition was without a doubt crucial to the establishment of regular sailings between Vladivostok and the Kolyma, and the first sailing directions for this route were compiled in 1912. But the purpose of the Arctic Ocean Expedition was much more important. Starting in 1911 under the command of aide-de-camp, captain B.A. Vilkitskiy, it was charged with carrying out a complete hydrographic survey and charting not just of the eastern section, but of the whole of the Northern Sea Route from east to west.

During the years 1910-15 the "Taymyr" and "Vaygach" gradually worked their way along the northern coast of Siberia, returning to Vladivostok at the end of each navigating season. A large number of astronomical fixes were taken, surveys were carried out, the sea bottom was sounded,

and detailed observations made of the ocean currents. These were used as the basis on which the charts for the vast area between Bering Strait and Cape Chelyuskin were later drawn up, permitting "relatively safe navigation" in these waters (L.M. Starokadomskiy). The expedition's observations on the characteristics of ice and its distribution were also very valuable, and were later used in drawing up instructions for ships navigating in the Arctic Ocean.(118)

The expedition discovered several new islands off the north coast of Siberia, including the vast archipelago north of the Taymyr Peninsula, discovered in 1913 and named Nicholas II's Land. After the Russian Revolution this was renamed Severnaya Zemlya, and turned out to have been the only major artic landmass to have escaped discovery during the 19th century. Although it is true that Nordenskiöld had said he thought there were islands to the north of the Taymyr Peninsula, neither he nor Nansen actually discovered them.

For the final stage of this Arctic Ocean Expedition, in 1914, the "Taymyr" and "Vaygach" were to sail the whole length of the Northern Sea Route from the Pacific to the White Sea and European Russia. Unfortunately they were prevented from completing the route in one navigating season because both icebreakers were caught in the ice at Cape Chelyuskin, the most difficult part of the route. Only 300-500 km away to the west Otto Sverdrup and the "Eclipse" were wintering off the Tillo Islands. Sverdrup maintained constant radio contact with the Vilkitskiy expedition, transmitting their messages to the new radio station on Vaygach Island - more than 1,000 kms to the west. This was the first time that wireless had played an important role in an Arctic rescue operation, and through the "Eclipse" Vilkitskiy's expedition was able to communicate with their superiors in the Russian Naval Ministry.(120) The "Taymyr" and "Vaygach" finally managed to break free from the ice and complete the last stage of their voyage, which was also the first time that Russian ships had navigated the whole length of the Northern Sea Route.

The Arctic Ocean Hydrographic Expedition had succeeded in

carrying out the first systematic survey of the Northern Sea Route east of the Yenisey. But the conclusion reached regarding its main aim was still negative. The expedition had encountered almost insuperable problems along the way, caused by ice and shallow waters, and it was clear that it would be many years before there could be a viable transit route for naval vessels north of Siberia. On the positive side, however, Russia did strengthen its grip on its own northern regions, though it had been obvious from the beginning this was only of secondary importance. The "Taymyr" and "Vaygach" expedition of 1910-1915 meant that Russia was able for the first time to specify the precise extent and form of the Russian possessions along the northern coast of Siberia, with the exception of Severnaya Zemlya, whose real extent became clear only in the Soviet era.

Although this remarkable expedition did not usher in a new era for the Northern Sea Route, it did make a significant contribution to safeguarding Russia's position in the region. It focussed the government's attention on its own northern territories, and in a diplomatic note despatched at the end of October 1916 to both its western Allies and the neutral countries, Russia put forward a clear-cut demand for recognition of its Sovereignty over all land north of the Asiatic part of the Russian Empire. The Russian demands included not only those islands which had been discovered by the Arctic Ocean Expedition and earlier Russian expeditions - the Zhokhov and Vilkitskiy Islands, Starokadomskiy Island, Nicholas II's Land and others, but also Henrietta, Bennett, Jeannette, Herald and Wrangel Islands in the Eastern Sector of the Russian Arctic, which had been discovered by whalers and polar explorers from other nations.(121)

The Russian Government's note also stated that it found it unnecessary to include in the list Novaya Zemlya, Kolguyev, Vaygach and other lesser islands along the north coast of Russia, "étant donné, que leur appartenance aux territoires de l'Empire se trouve depuis des siècles universellement reconnue" ['given that it has been universally recognised for

centuries that they form part of the territories of the Empire']. There were few protests against the Russian note, and thus Tsarist Russia successfully consolidated its grip on the seas and islands of the Northern Sea Route, only a few months before its final demise.

3.4 The Northern Sea Route under the old regime

3.4.1 The Perm-Kotlas and Vologda-Archangel railway lines

As the 19th century drew to a close, it was probably true to say that in most peoples' minds the Northern Sea Route and the Kara Sea Route were still synonymous, and there were serious doubts about whether even this first section had a future.

One question being asked was whether the development of railways in Northern Russia and Siberia might make the sea route redundant? The Trans-Siberian Railway was being built on the assumption that its main economic role would lie in transit shipments from European Russia to the Russian Far East. However, there was also a dawning realization, especially at local government level, that the railway might also prove to be an important means of developing Siberia's resources and effecting large-scale colonization of the area.(122) Joseph Wiggins was of this opinion. In January 1895 in a lecture before a joint assembly of several learned societies in St Petersburg (later the same year to be repeated in the Royal Society of Arts in London), he reviewed his voyages to Siberia over the past 22 years and analysed the region's natural wealth. He foresaw that the Trans-Siberian Railway would bring with it a huge influx of population which would become a cheap labour force. He predicted that production would increase as a result of the railway and that this would in turn open up new prospects for the Northern Sea Route, through which British merchants would be able to establish economic links with Siberia.(123)

There was indeed rapid economic growth in Siberia during the second half of the 1890s. The two basic factors underlying

this were the coming of the railway and the sudden influx of colonists, who settled in the areas around the railway line. In the eight years from 1894 to 1902 Siberia got a total of 900,000 new settlers. From 1900 to 1905 an average of 66,800 settlers arrived yearly; from 1906 to 1909, an average of 320,000. From then on the figures began to decline. However, the rapid development of Siberian agriculture meant that once again markets were needed for the sale of surplus production, and this posed an acute problem. The Central government received a stream of petitions from Siberian city councils, the general public and various trade associations, as well as from members of the newly established State Duma, urging upon it the need to open the Northern Sea Route. Rear Admiral S.O. Makarov on his visit to Siberia in 1897 was struck by the unanimous and enthusiastic support given to the Northern Sea Route by entrepreneurs in Yeniseysk, Krasnoyarsk, Tomsk, Tobolsk and Tyumen. There was an enormous interest in the possibility of using the sea route for the export of Siberian products to European markets.(124)

However, as Siberian agriculture developed the Russian Government's first impulse was to protect the landowners of European Russia from the threat of competition by ensuring that the domestic markets and the Baltic ports were not inundated with cheap grain from Western Siberia.(125) Krypton points out that the situation was aggravated as the world agricultural crisis became felt in Russia, causing the domestic price of winter wheat, for example, to fall from 109 kopeks a pood in 1883 to 51 kopeks in 1894. There was a corresponding decline in the export prices of grain from Central Russia. All these factors combined to persuade the government to introduce the notorious Chelyabinsk rate differential, whereby the government charged significantly higher freight rates for Siberian grain coming east of the Urals on its way by rail to the markets and ports of European Russia.

The government's concern about grain prices, however, was not incompatible with the idea of a new outlet for Siberian

products to the north. In the 1890s the solution to the problem of cheap Siberian grain flooding the markets of European Russia was first sought in the construction of a railway line from Perm to Kotlas on the Dvina, which would eventually connect to a projected line from Vologda to Arkhangelsk. A committee appointed by the government in 1893 under Deputy Minister for Transport N.P.Petrov was asked to evaluate various railway projects in Northern Russia and Siberia, and it put the Perm-Kotlas line high on its list of priorities. A railway Perm-Vyatka-Kotlàs could be linked to the steamship lines on the rivers Kama and Volga, as well as to the railways of Northern Ural, and there was a connection via Yekaterinburg with the Trans-Siberian Railway. Thus the two new lines, Perm-Kotlas and Vologda-Arkhangelsk would make Arkhangelsk the grain port for large areas of Western Siberia.(126)

It was hoped that Siberian grain shipped through Archangel would go straight to the London market where it would be in competition mainly with American and Argentine grain, rather than enter the German market where grain from Central Russia usually found its customers. The construction of the two railway lines started in the mid-1890s, and by 1898 the section from Vologda to Archangel was ready, with the Perm-Kotlas section being put into operation the following year.

3.4.2 The Siberian Steamship Manufacturing and Trading Company

The Perm-Kotlas Railway, however, did not distract attention from the Northern Sea Route for long. It soon became appearant that the line had been very badly constructed, and when it came to the point Siberian grain growers were reluctant to send their cargoes via Archangel. Another possible explanation is that the Trans-Siberian Railway did not have sufficient freight capacity resulting in a bottle-neck for goods from Western Siberia. Whatever the reason for the failure of the Perm-Kotlas route, in the last years of the pre-revolutionary

period the Russian government made a new effort to develop the Kara Sea Route and make it safe for shipping. During the same period (1911-1917) first British and then Norwegian partners tried once again to establish a regular freight service along the route.

Since the mid-1870s various Norwegian ship-owners had tried to become involved in the Kara Sea Route, but their proposals had been rather vague and nothing had come of them. In 1910 Captain Sigurd Scott-Hansen, who had been with Nansen on the "Fram" expedition of 1893-96, visited St.Petersburg at the head of a consortium of Norwegian steamship owners with plans for a public limited company to develop a trade route between Europe and the estuaries of the Ob and Yenisey. They argued that the Norwegians' intimate knowledge of the area after many years of sea mammal hunting meant that their plans might quickly be realised. The Russian press carried very positive reports, saying that their proposals would almost certainly be taken further, since the Kara Sea Route was essential for the development of Siberian trade, though adding the familiar complaint that "those to whom the land belongs - the Russians - have scarcely taken any part in developing the route".(127)

Unfortunately Scott-Hansen's project came to nothing, and this may have been because he and his friends asked for taxfree import of goods into Siberia. It is certianly true that once the Trans-Siberian Railway had been built Russia developed increasingly protectionist trade policies. At the same time the decision taken in 1907 to carry out a proper survey of the Northern Sea Route east of the Yenisey probably made the government feel confident that it could succeed without any help from abroad. In 1909 the Council of Ministers had already decided in principle not to subsidize private entrepreneurs, but to invest instead in improving conditions for navigation by setting up radio-telegraph stations, and construction work on these eventually started in 1912. Admiral Makarov had long asked for more active state intervention to improve operating conditions on the Kara Sea Route, but it was

the ill-fated Rusanov who was the first to formulate an unequivocable demand for government participation in setting up the necessary infrastructure before he himself vanished in the ice of the Kara Sea. Instead of wasting money subsidizing private steamship companies, the government should be preparing the ground for the rationally organized navigation of the future.(128)

The radio station at Yugorsky Shar was opened in 1913, to be followed in 1914 by stations on Vaygach Island and at Mare Sale on the west coast of the Yamal Peninsula. A radio station was opened in 1915 on Dickson Island, and a telegraph line from Turukhansk to Dudinka established direct communication between the estuary of the Yenisey and the city of Krasnoyarsk. Work was started on installing beacons along the Yenisey as far as Dickson Island. The construction of the harbour at Ust-Yeniseysk started in 1917, on the eve of the Soviet period.(129)

Parts of this new and long-awaited infrastructure were in use before the start of the Revolution. Their two most prominent users were the 1910-15 Arctic Ocean Hydrographic Expedition and Jonas Lied, a Norwegian businessman. Lied's is a very interesting story, as strangely enough, he seems originally to have had no contact with his Norwegian predecessors in this field. In fact, he only learned about the Northern Sea Route from English sources, as a result of a chance encounter on a railway train between Hamburg and Paris in January 1910. On the train he made the acquaintance of an English businessman, Alfred E. Derry, who was on his way home from Russia. Like his compatriot Joseph Wiggins, Derry too was obsessed by the idea of "finding a passage through the ice of the Polar seas across to Atlantic ports".(130)

A few days later, by way of a follow-up to their conversation, Derry sent to Lied a copy of Henry Johnson's book, "Life and Voyages of Joseph Wiggins". Lied was absolutely fascinated by the book. He decided to investigate further. True enough, Johnson's biography of Wiggins was "a book of marvellous failures", but what Joseph Wiggins had

tried to do in the 1870s "with daily prayer meetings in the Arctic", Lied would try to do more successfully in 1910 "with the aid of modern science". Unlike his predecessors Lied's plans were based not on import to Siberia, but basically on the export of forestry products and minerals from the Yenisey area to Western Europe.

Jonas Lied spent most of the following year in the Yenisey area studying carefully all the conditions of possible trade with Central Siberia through the Kara Sea, and in 1912 the Siberian Steamship Manufacturing and Trading Company was set up. The most important partners in this enterprise were two Norwegian businessmen, the shipping magnate Christen Christensen and the timber merchant Elias Kiær. The company was formed on 5th January 1912 at a meeting in the Grand Hotel, Oslo, with a capital of only £ 8,000. Although it was a modest beginning, Lied set off in his first ship, the "Tulla", to the estuary of the Yenisey that same year. This was 1912, when ice conditions were particularly difficult and three Russian expeditions were wrecked. Lied had to turn back at Yugorskiy Shar.

His next attempt to reach the Yenisey was made in 1913 on board the "Correct". In a shrewd move aimed at attracting publicity, Lied asked his compatriot, the great Fridtjof Nansen, to join him on the voyage, and after receiving a formal invitation from the Russian Government he accepted. Blessed with Nansen's presence on board and with Hans Christian Johannesen, the captain of the "Lena", as ice-pilot, the ship was sure to get through. Moreover, in 1913 there was something absolutely new, namely the wireless stations at Yugorskiy Shar and the Karskiye Vorota. The radio network had not been officially opened, but Lied had permission to make use of it.(131) The voyage was a success, and later the same year another vessel, the steamer "Zapad" belonging to the Archangel merchant K.Yu Spade, had a successful voyage to the Ob.

Nansen's presence on board the "Correct" had certainly attracted the attention of the international press, and Jonas

Lied and the Siberian Steamship Manufacturing and Trading Company found themselves under the spot-lights with him. The Northern Sea Route had suddenly become the latest topic all over Europe.(132)

In the years to follow Lied sent several more expeditions to the Yenisey. He cultivated good relations with the Russian authorities and worked hard to ensue that his business enterprise had plenty of political support within Russia. S.V. Vostrotin, who was a member of the Constitutional-Democratic Party and represented the Yeniseisk province in the State Duma, became a partner in Lied's company and did more to promote the Kara Sea Route and his schemes for developing Siberia than any modern-day public relations agent could have done. Lied also had the support of a former Minister for Trade and Industry, V.I. Timiryazev, and, last but by no means least, Grand Duke Alexander Mikhaylovich, who as cousin and brother-in-law of Tsar Nicholas II had considerable personal influence on the Tsar.

Lied's efforts seem to have coincided with a growing interest in the Kara Sea Route on the part of the Russian Government, possibly as a result of pressure from Siberian business circles. An Inter-Ministerial Conference in 1913 recommended that new efforts should be made to develop the Kara Sea Route, and in a report to the State Duma the Ministry of Trade and Industry argued that it needed to revitalize the economic and cultural life of Siberia. Another reason for Lied's success may have been that he was careful not to antagonize either the Russian Government or Siberian and Russian merchants by pressing too hard for a Free Port or for duty-free imports.

His main emphasis was on the export of Siberian timber. However, the Siberian timber industry was still poorly developed, and the exploitation of the natural riches of Siberia required a tremendous and concerted effort. Lied's company needed to speed up timber production in the Yenisey region by establishing saw mills. But the problems would not be solved just by constructing modern saw mills on the far off

banks of the Yenisey and assuming that the rest would follow. Lied planned to undertake what has come to be known as a "block development", meaning the simultaneous construction of a production system and a transport system. In other words he had to develop river transport on the Ob and Yenisey before he could start logging operations. In 1914 he succeeded in obtaining Russian citizenship remarkably quickly and took an oath of allegiance to the Tsar, which meant that he could now buy an interest in Russian companies. By 1916 he had a controlling interest in river transport on both the Yenisey and on the Ob.

Initially Lied had envisaged the new trade as being primarily from Siberia to Norwegian ports and Western Europe, but was soon looking for new markets, with higher sale prices, in the United States. With the outbreak of World War I the Russian Government had to impose restrictions, and this obviously created problems for the company. However, Lied continued to develop his company's infrastructure, and 1916 was a year of great plans, partly because of increased share capital, partly because of the potential advantages to be gained from his control of river transport on the Yenisey and Ob. With a complete disregard for the political situation in Russia, Lied decided that the time was right to move into the timber trade, and started building saw mills.

The February Revolution of 1917 put a stop to all these schemes and Lied later admitted that it came as the biggest shock he had ever had in his whole life.(135) Almost overnight all his supporters and his various friends in the government disappeared. The Bolshevik Revolution in October of the same year, was the final death knell for his business empire, although for a long time he persisted in imagining that it was possible to do business with Lenin and the Council of People's Commissars. It was hard for him to face up to the fact that his services were quite simply no longer required.

3.5 Conclusion

In spite of its brief existence, Lied's company had achieved quite a remarkable feat in the history of the Northern Sea Route. For four years in succession its ships carried out successful commercial voyages from Norway to the mouth of the Yenisey and back. The question which must be asked is whether Lied's great expectations would have been fulfilled, and whether the Kara Sea Route would have become a viable, regular shipping route between Siberia and the western world - if this development had not been interrupted by the Russian Revolution of 1917. Terence Armstrong maintained that although the Northern Sea Route had only been used sporadically before the revolution, a lot of the groundwork for its future use had already been done: "The way was clear for large-scale development".(136)

Armstrong's view is almost exactly opposite of Pinkhenson's claim that only the Soviet system with its highly centralized planned economy was capable of developing the Northern Sea Route. He maintains that the internal contradictions of capitalism made even the most westerly section, the Kara Sea Route, unattainable, partly due to conflicting interests within the Russian ruling class, and partly because the very essence of capitalism militated against long-term investments which did not produce quick returns. The capitalist system precluded large-scale investment in infrastructure, and in the case of the Northern Sea Route this meant that the icebreaking services, the comprehensive radio network, and the scientific research organization, all of which were essential to improve the viability of the route, were not really on the agenda.(137)

There is certainly something to Pinkhenson's argument. The centralized political and economic system introduced by the Bolsheviks in the late 1920s and early 1930s meant that Soviet leaders were in a position to make rational and unhurried decision regarding investment aimed at the future exploitation of the resources of the northern regions, and

they did not have to put up with the kind of hand-to-mouth existence which the old regime acceded to. It is difficult to imagine that by the 1930s the Tsar (had he not been overturned in 1917) or even some new liberal-constitutional regime, would have set up the equivalent of the Chief Directorate for the Northern Sea Route (GUSMP). However, it is also clear that the Tsarist Government was capable of investing very heavily in the infrastructure projects that it deemed necessary, and could indeed complete massive construction programmes with remarkable speed. A good example is the Trans-Siberian Railway itself. The main problem then may well have been that the Tsarist Government was not sufficiently interested in its northern regions. Admiral Makarov's saying, that Russia "faces to the north", is often quoted. This may be true geographically speaking, but in actual fact Tsarist Russia only looked north in times of crisis, when it had no other options. A good example of this was the building of the Murman Railway in 1915-16:

The Russian Naval Ministry had long realised that the Murman coast might come to play an important role should Russia become involved in a large-scale conflict in Europe in which the Baltic and Black Sea ports were cut off from the rest of the world. But lack of resources resulted in this task being consistently deferred. Plans to build the port did not move any further forward until the outbreak of World War I, when Russia was forced to start construction without delay. Poorly prepared for the war, the Russian army was dependent on military supplies bought in large quantities from its western allies. At the same time the country desperately needed a port from which to export Russian goods. The Murman Railway Project (Murmanstroyka) suddenly moved up the agenda. By the end of 1914 the Tsar had decided to build a railway stretching from Petrozavodsk to Soroka, and on 10 February 1915 the government released the first funds for its construction. Considerable resources were earmarked for the project; and the Murman railway, over 600 miles in length and the world's most northerly railway, was completed in 20 months.

The Northern Sea Route was not given the same high priority as the Murman Railway Project, but the development of the Kara Sea Route was all the same progressing well during the last years of the old regime, and there is no particular reason to believe that this development would not have continued and perhaps even accelerated. The icebreakers, radio stations and airplanes that were being introduced at the beginning of the 20th century would in any case have eventually defeated the difficult ice conditions that made the Kara Sea Route so hazardous to shipping.

In the years immediately preceding the 1917 Revolution, the Russian Government itself had financed improvements on the Kara Sea Route to improve the safety of navigation. Jonas Lied's prediction that the Kara Sea Route would become safer every year already seemed to have been proved. Ships' captains could now be told by wireless what course to steer for a clear passage to the estuaries of the Ob and Yenisey. Sailors were gaining valuable experience of conditions in the Kara Sea, and it was generally expected that when aviation was eventually introduced it would prove invaluable. In 1914 the first polar aviator, a Pole in Russian service Jan Nagórski (Ya.I. Nagurskiy), sailed with an expedition to Novaya Zemlya on board the "Pechora" taking a small French built Farman hydroplane to search for signs of the missing expeditions and make ice observations.(138)

Pinkhenson puts great emphasis on the fact that between 1876 and 1919 there were only 122 voyages on the Kara Sea Route, an average of three a year. In 14 of these years there was no commercial navigation, and it is true that these figures give the impression that use of the route was both episodic and sporadic. He also points out that imports significantly exceeded exports. The total cargo carried amounted to 55,180 t., of which 2/3 was imports, only 1/3 exports, a ratio which was far from meeting Siberia's requirements since what it needed most was a means of exporting its products on a regular basis.(139) The picture would be brighter, however, if we subtracted from the import

figures the many thousand of tons of railway equipment imported by the Russian Government in 1893 and 1905. And it also cannot be denied that like it or not, there was a persistent demand for foreign consumer goods in Siberia.

VOYAGES ACROSS THE KARA SEA 1901-1919

T: Total number of voyages
A: Successful voyages
B: Unsuccessful voyages

Year	T	A	B
1901			
1902			
1903			
1904			
1905	16	14	2
1906			
1907			
1908			
1909			
1910			
1911	1	1	
1912	1		1
1913	2	2	
1914	6	6	
1915	2	2	
1916	1	1	
1917	1		1
1918	3	2	1
1919	9	9	
Sum	42	37	5

Source: D.M. Pinkhenson, Problemy Severnogo morskogo puti v period kapitalizma, p. 420.(140)

Although Pinkhenson's arguments about the small number of voyages and the sporadic use of the Kara Sea Route are weighty, one also has to admit that the Siberian Steamship Manufacturing and Trading Company marked a new phase of development. The most significant departure was that Lied's vessels sailed regularly, despite the uncertainties and irregularities caused by World War I. Another important factor was that the Russian Government looked kindly on Jonas Lied and his plans. The authorities were obviously becoming more willing to accept increased foreign activity along the Northern Sea Route. It was probably easier for them to acquiesce in this development now that the government was consolidating its own position in the north and was therefore more confident. The Arctic Ocean Hydrographic Expedition was reinforcing Russia's hold over the areas around the Northern Sea Route, and the building of the Murman Railway (completed in October 1916) which connected the ice-free Kola Fjord with central Russia, would eventually improve Russian surveillance of incoming vessels. The end point of the Murman Railway, the port of Romanov-na-Murmane, renamed Murmansk after the Russian Revolution, was to become the western terminus of the Northern Sea Route. This development together with the War-time alliance with France and England seems to have eliminated most of the political obstacles to the development of the Kara Sea Route. Also the most easterly section of the Northern Sea Route, the seaway from Vladivostok to Kolyma, had been brougth into more or less regular use.

Jonas Lied was probably not the only one to ask himself why the Russians did not finance and organize the Kara Sea Route themselves, as they seemed to have so much faith in its potential. The most obvious reason was that it was a foreign trade route, and the Russians were dependent on foreign know-how to establish the necessary connections. The other reason Lied suggested was that the Norwegians had a better understanding of ice navigation. As a general statement this can hardly have been true, as Norway's long coastline is washed by completely ice-free waters, whereas Russia had ample

experience of ice in all the seas, adjacent to it. Nevertheless it is still reasonable to assume that the ice expertise which the Norwegians had acquired over several decades of hunting in the Kara Sea gave them an advantage.

The third factor Lied mentioned was Russia's need "to look to the foreigner for energy, thoroughness and efficiency".(142) This is an even more dubious statement, belonging to the realm of the unquantifiable and unverifiable. It was, moreover, disproved during the Soviet period at least in as much as the Northern Sea Route was concerned, as Russia by and large had to do without the help of foreigners like Jonas Lied, yet still managed to develop the Northern Sea Route into one of crucial importance to the nation.

SOURCES AND LITERATURE:

1. Constantine Krypton (K.G. Molodetskiy), The Northern Sea Route. Its place in Russian Economic History before 1917. Research Progamme on the USSR (New York 1953), pp. 2-5, 10.
2. Pinkhenson, D.M., Problemy Severnogo morskogo puti v period kapitalizma. Istoriya osvoyeniya Severnogo morskogo puti, vol. 2 (Leningrad 1962), p. 58.
3. Cited by Krypton, op.cit., p. 20.
4a. Pinkhenson, op.cit., p.16.
4b. Ibid., p. 61.
5. Zhilinskiy, A.A, Rossiya na Severe (K opisaniyu zhizni i deyatelnosti M.K.Sidorova) (Archangelsk 1918), pp. 16-17.
6. Zhilinskiy, A.A., op.cit., pp. 124-125.
7. Cfr. V.V.Mavrodin, Russkiye polyarnye morekhody (Leningrad 1955), p.17.
8a. Studitskiy, F.D., Istoriya otkrytiya morskogo puti iz Evropy v sibirskiye reki i do Beringova proliva (St.Petersburg 1883), t.1, pp. 47-49, t.2, pp. 10-11.
8b. V.M.Pasetskiy, Ocharovannoyy nadezhdoy. Leningrad 1970, pp. 84-85.
9. Krypton op.cit., p. 28.
10. Studitskiy op.cit. t.1, pp. 47-49.
11. Studitskiy op.cit., pp. 49-50.
12. Studitskiy op.cit., pp. 47-49.
13. Morskoy sbornik 1863, 2-3, official part, pp. 41-56. Cited by M.K. Sidorov in Sever Rossii (St Petersburg 1870), p.76.
14. See J.P.Nielsen, "The Barents Region in Historical Perspective. Russian-Norwegian Relations 1814-1917 and the Russian Commitment in the North", in Olav Schram Stokke and Ola Tunander (eds.), The Barents Region. Cooperation in Arctic Europe (London 1994), pp. 87-100.
15. Zhilinskiy op.cit., pp-75-77.
16. Studitskiy, op.cit., vol. 1, pp. 78-80.
17. Studitskiy, op.cit., pp. 142-146.
18. Besedy o Severe Rossii v 3 otdelenii imperatorskogo volnogo ekonomicheskogo obshchestva po dokladam: V.L.Dolinskogo, V.L.Latkina i M.K.Sidorova (St Petersburg 1867), p. 196.
19. Studitskiy op.cit., pp. 94-96. Finmarksposten 06.12. and 13.12.1868.
20. Finmarksposten 25.02.1869.
21. Krypton, op.cit., p. 24.
22. Studitskiy, op.cit. t. 1,, p. 116-120 and Krypton op.cit., p. 23.
23. Finmarksposten 03.08.1869.
24. Nordenskiöld, A.E., Vegas Reise omkring Asia og Europa. Tilligemed et historisk tilbakeblik paa tidligere reiser langs nordkysten af den gamle verden (Kristiania n.d.), p. 282. English edition: The Voyage of the Vega round Asia and Europe (London and New York 1886).
25. Studitskiy op.cit., pp. 116-120.
26. Studitskiy op.cit., pp. 92-93.
27. Krypton op.cit., pp. 10-11.

28. Ibid., pp. 15-16.
29. Johnson, H., Life and Voyages of Joseph Wiggins, F.R.G.S. modern Discoverer of the Kara Sea Route to Siberia based on his Journals and Letters (London 1907), p. 70.
30. Krypton op.cit., p. 29.
31. Studitskiy, op.cit., pp.96-101.
32. Krypton op.cit., pp. 28-29. See also Kaare Valle, En oversikt over konfliktene mellem Norge og Russland om selfangsten i Østisen i tidsrommet 1893-1926 (unpublished M.A. thesis in political science, University of Oslo 1956), p. 11.
33. A.E. Nordenskiöld, Vegas Reise omkring Asia og Europa, p. 280. Most authors refer to the same year. Cf. Trygve Mathisen, Svalbard i internasjonal politikk. 1871-1925 (Oslo 1951), p. 37, Gunnar Isachsen, "Folk, Fangst og Færder". Norsk geografisk selskaps årbok 1916-1919, p. 196. Einar Sørensen, Ishavsfangst gjennom 100 år (Tromsø 1979), p.15, Pinkhenson, op.cit., p. 73.
34. R. Mook, Elling Carlsen und die Österreichisch-Ungarische Nordpol-Expedition von 1872 bis 1874. Institute of Social Sciences, Stensilserie B, University of Tromsø, 1984.
35. See Horn, G., Franz Josef Land, Natural History, Discovery, Exploration, and Hunting. Skrifter om Svalbard og Ishavet nr. 29 (Oslo 1930), pp. 11-12, as well as Odd Gunnar Skagestad, Norsk polarpolitikk. Hovedtrekk og utviklingslinjer 1905-1974 (Oslo 1975), p. 34. As for Baron Schilling's "theoretical discovery" of Frans Josef Land see Kremer, B.A., "Kak bylo predskazano sushchestvovaniye Zemli Frantsa Iosifa", in Letopis Severa 1957, pp. 147-150, as well as Alexandr N. Krenke, "Russian research in Franz Josef Land", in Susan Barr (ed.), Franz Josef Land. Oslo 1995, pp. 129-130.
36. Finmarksposten 25.02.1869. Russian sources also indicate that Carlsen could have had Norwegian predecessors in the area. Some Pomor hunters sent a letter of complaint to the Russian Ministry for the Interior in January 1869, referring to the fact that the Norwegian industry at Novaya Zemlya had already gone on "for some years". The brothers Voronin to the Russian Ministry for the Interior 17.01.1869. The State Archive of the Archangel Province (GAAO) f.1, op.5, d.981. A paragraph in Kronshtadtskiy Vestnik in March 1867, referring to Norwegian hunting in the Kara Sea, points in the same direction. This information must necessarily relate to the summer of 1866. Kronshtadskiy Vestnik 27.03.1867 (nr.33).
37. Valle op.cit., p.11. According to Petermanns Geographische Mittheilungen there were 27 vessels in the area, but among these there could have been vessels from other nations.
38. Terence Armstrong, The Northern Sea Route. Soviet Exploitation of the North East Passage (Cambridge 1952), p. 3.
39. The table does not include Russian vessels that went directly to Norway with their catch, but the number of such vessels was quite insignificant.
40. "S Murmana (ot nashego korrespondenta)", Russkoye

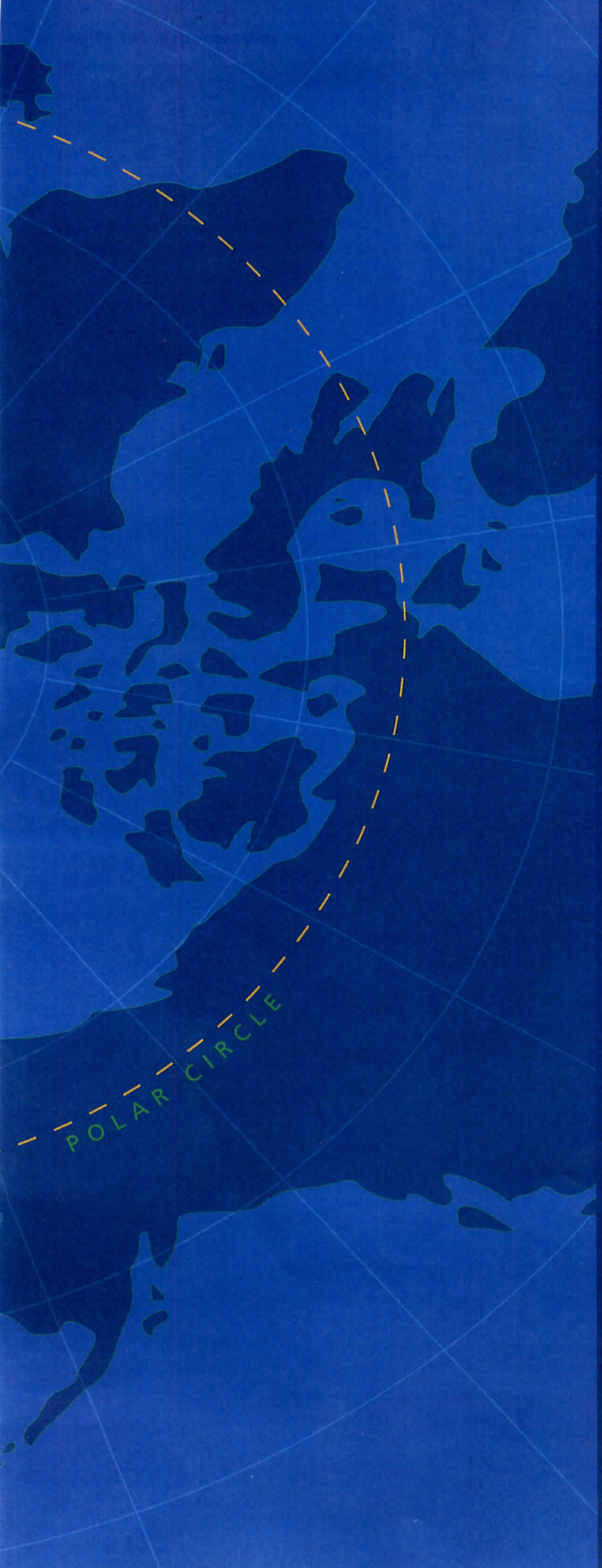
Sudokhodstvo 1887, XII, prilozheniya, p. 50.

41. F. Studitskiy, Istoriya otkrytiya morskogo puti iz Evropy v sibirskiye reki i do Beringova proliva, t.1, pp. 78-80, Besedy o Severe Rossii, p. 194, "O neobkhodimosti ogradit pravo sobstvennosti Rossii na Karskoye more". Sidorov's lecture to the Society for promotion of Russian industry and trade 22.12.1871, in F. Studitskiy, Istoriya otkrytiya morskogo puti iz Evropy v sibirskiye reki do Beringova proliva, t.2 (Prilozheniya), p. 42.
42. See Tore Vorren, "Polarforskeren Karl Pettersen", Ottar 1992/3, pp.25-30.
43. Petermanns Geographische Mittheilungen 1871, pp. 35-36. A.E. Nordenskiöld, Vegas Reise omkring Asia og Europa, p. 283.
44. Tromsø Stiftstidende 15.10.1871.
45. Petermanns Geographische Mittheilungen 1872, pp. 381-396.
46. Ibid., p. 382 and 394.
47. P.A. Kropotkin, Ekspeditsiya dlya issledovaniya russkikh severnykh morey. St Petersburg 1871, p. 35. Translation by Krypton, op.cit, p. 30. P.A. Kropotkin, Zapiski revolyutsionera. Moscow 1990, pp. 210-211.
48. M.K. Sidorov, "Po povodu gollandskoy i nemetskoy ekspeditsii na Novuyu Zemlyu", in F. Studitskiy, Istoriya otkrytiya morskogo puti iz Evropy v sibirskiye reki i do Beringova proliva, t.2 (Prilozheniya), pp. 208-209.
49. "About Norwegians accused of seal hunting in Russian waters", GAAO, f.4, op. 16, t.1, d. 1866. Ministry for internal affairs to the governor of the Archangel province 29.09.1878. GAAO f.1, op.8, t.1, d. 1599.
50. J.P. Nielsen, "Novaya Zemlya - 'No man's land'"?, The Barents Region. Way North (Tromsø Museum, University of Tromsø), 1995, pp. 4-17.
51. RAVMF f. 417, op.1, d. 2279, l. 182. The head of the Ministry for agriculture and state domains to the head of the naval ministry 30.05.1901.
52. Charles Rabot, "La colonisation de la Nouvelle-Zemble", Geographie (Paris), 1902, vol. 5, pp. 482-83. R.Waultrin, "De la condition internationale de la Nouvelle Zemble", Revue generale de droit international public, 1911, pp. 359-64.
53. L.F.Grinevetskiy, "Poperek Novoy Zemli", Izvestiya imperatorskogo russkogo geograficheskogo obshchestva, t. XIX, 1883, pp. 265-291. V.M. Pasetskiy, Pervootkryvateli Novoy Zemli (Moskva 1980), pp. 133-37. See also Reinhard Mook, "Polaråret 1882-1883. En historisk skisse", Været 1982 (Oslo), no.6, pp. 83-94.
54. V.M. Pasetskiy, Pervootkryvateli Novoy Zemli, pp. 137-58, 162.
55. Krypton op.cit., p. 1.
56. Ibid., p. 38.
57. Ibid., p. 41.
58. Henry Johnson op.cit., p. 79.
59. Wiggins had heard through Petermann that Sidorov tried to establish the Northern Sea Route.
60. Henry Johnson op.cit., p. 15-16.
61. Johnson, op.cit., p.49.

62. Johnson op.cit., p.86.
63. Johnson, op.cit., p. 131.
64. Nordenskiöld op.cit., p. 295-97.
65. Krypton op.cit., p. 43
66. George Kish, North-East Passage: Adolf Erik Nordenskiöld. His Life and Times (Amsterdam 1973), p. 140.
67. Kish op.cit., p. 142.
68. Kish op.cit., p. 143.
69. Johnson, op.cit., p. 151.
70. Terence Armstrong, The Northern Sea Route. Soviet Exploitation of the North East Passage, p. 5.
71. Johnson, op.cit., p. 128.
72. Herbert Abel, "'Commerzielle Pionierfahrten' zur westsibirischen Eismeerküste (1876 bis 1884), in Jahrbuch der Wittheit zu Bremen, Band XXII (Bremen 1878), pp. 17-20. Pinkhenson, op.cit., pp. 200-201.
73. Pinkhenson, op.cit., p. 201.
74. Krypton op.cit., pp. 52-53.
75. Krypton op.cit., p. 65-66.
76. Herbert Abel, op.cit., p. 49.
77. Armstrong op.cit., p. 7, Krypton op.cit., p. 139.
78. Not included in the table are the six expeditions of the research vessel "Pakhtusov", the voyages of the sloop "Mechta" and many Norwegian polar vessels which yearly entered the Kara Sea.
79. Krypton op.cit., p. 124.
80. Krypton op.cit., p. 37.
82. Pinkhenson, op.cit., p. 202-203.
83. Joseph Wiggins, Morskoy put v Sibir Karskim morem 1874-1894. St Petersburg 1895, p.13.
84. Makarov, S. "Yermak" vo ldakh (St. Petersburg 1901) p. 43. See also Pinkhenson, op.cit., pp. 266-85.
85a. P.A.Kropotkin, Zapiski revolyutsionera. Moskva 1990, pp. 212-13.
85b. L.S. Berg, Ocherki po istorii russkikh geograficheskikh otkrytiy (Moscow-Leningrad 1946), p. 45. Possiet was Russia's Minister for Transport in the years 1874-88.
86. Julius Payer, New lands within the Arctic Circle. London 1876, vol. 1, p.55.
87. Kish op.cit., p. 117.
88. F.Studitskiy, Istoriya otkrytiya morskogo puti iz Evropy v sibirskiye reki i do Beringova proliva, t.1, pp. 147-49.
89. The Northeast Passage. From the Vikings to Nordenskiold (Helsinki 1992) p. 52.
90. Urban Vråkberg, Vetenskapens vikingatåg. Perspektiv på svensk polarforskning 1860-1930 (Uppsala 1995)
91. Nordenskiöld, op.cit., p. 28.
92. Kish op.cit., p. 154.
93. Kish op.cit., pp. 154-155.
94. Nordenskiöld, Vegas Reise omkring Asia og Europa, p.7-8.
95. Ibid., p. 350-56.
96. A.E.Nordenskiöld, Sur la possibilité de la navigation commerciale dans la mer glaciale de Sibérie. Mémoire soumis a sa Majesté le Roi de Suède et de Norvege (Stockholm 1879), p. 20.

97. Edwin Okhuizen, "Exploration and mapping of the Northeast Passage and northern Eurasia, 15th - 19th centuries", in The Northeast Passage. From the Vikings to Nordenskiöld, p.48.
98. Nordenskiöld, Sur la possibilité de la navigation commerciale ... p. 20-21.
99. Krypton op.cit., p. 74.
100. Kåre Valle op.cit., p. 17-18.
101. Krypton op.cit., p. 79-80.
102. Armstrong op.cit., p. 9. Pinkhenson, op.cit., pp.172-77.
103. Krypton op.cit., p. 85, Pinkhenson, op.cit., p. 177.
104. Pinkhenson, op.cit., p. 177.
105. Pinkhenson, op.cit., pp. 204-207.
106. Armstrong, op.cit., p. 10. Pinkhenson op.cit., p. 421-23.
107. Fridtjof Nansen, Fram over polhavet, vol. 1 (Kristiania 1897), pp. 10-25. J.Arthur Bain, Life of Fridtjof Nansen. Scientist and Explorer. Including an Account of the 1893-1896 Expedition (London 1897), pp. 126-141.
108. Tor Bomann-Larsen, Den evige sne (Oslo 1993), p. 29.
109. D.M. Pinkhenson, Problema severnogo morskogo puti v epochu kapitalizma, pp. 426-50.
110. Communication from Lamsdorff to P.P. Tyrtov 09.02.01. RAVMF F.417, OP.1, D. 2279, l.194. See also Pinkhenson op.cit., p. 429.
111. L.S. Berg, op.cit., p. 45. Pinkhenson, op.cit., pp-578-86.
112. L.L. Breytfuss, "Morskoy Sibirskiy put na Dalniy Vostok. S protokolami osoboy kommissii po etomu voprosu", Russkoye sudokhodstvo 1904, nr.6.
112b. Pinkhenson, op.cit., p. 597.
112c. Pinkhenson, op.cit., p. 599.
112d. A.A. Sidensner, Opisaniye Murmanskogo Poberezhya. Izdanie Glavnogo Gidrograficheskogo upravlenija Morskogo Ministerstva (St.Petersburg 1909), p.193.
113. Pasetskiy op.cit., p. 74.
114. See William Barr, "Sedov's Expedition to the North Polle 1912-1914", Canadian Slavonic Papers 25, 1973, pp. 499-524, idem, "Rusanov, Gerkules and the Northern Sea Route", Canadian Slavonic Papers 26, 1974, pp. 569-611, idem, "The Drift of Lieutenant Brusilov's 'Svyataya Anna' 1912-1914", Musk-Ox 22, 1978, pp. 3-30. Otto Sverdrup, Under russisk Flag (Oslo 1928), p. 76-77.
115. William Barr, "The Drift of Lieutenant Brusilov's 'Svyataya Anna' 1912-1914", p. 22-24. Otto Sverdrup, Under russisk Flag, pp. 15-19.
116. Franz Josef Land had never belonged to Austria-Hungary, and Russian authorities did not confirm Islyamov's occupation. See the newspaper Arkhangelsk 29.04.1915. Communication from the Norwegian Consul-general H.A. Falsen to the Norwegian Ministry of Foreign Affairs 25.09.1914. The Archive of the Norwegian Ministry of Foreign Affairs P 9 D 2b/16.
116b. L.M. Starokadomskiy, Charting the Russian Northern Sea Route. The Arctic Ocean Hydrographic Expedition 1910-1915 (Montreal & London 1976), pp. 4-5.
117. Krypton op.cit., p. 98.

118. Starokadomskiy, op.cit., pp.263-64.
120. Starokadomskiy, op.cit., pp. 238-249.
121. Ambassador K.N. Gulkevich to the Norwegian foreign minister 23.10.1916. P9 D 2/16. See also Aftenposten 28.10.1916.
122. Krypton op.cit., p. 75.
123. See Joseph Wiggins, Morskoy put v Sibir Karskim morem. St Petersburg 1895 and idem "My recent voyages in Siberia", Journal of the Royal Society of Arts, vol. 43, No 2213, April 1895, pp. 499-507.
124. S.O. Makarov, "Yermak vo ldakh, pp.94-98, 100-103.
125. Krypton op.cit., p. 106.
126. A printed version of the negotiations of the Petrov Commission is available in the Finnish National Archive (Valtionarkisto); private collection of senator Georg v.Alfthan.
127. Izvestiya Arkhangelskogo Obshchestva dlya izucheniya Russkogo Severa 1910, no. 8, p. 40-41.
128. V.S. Koryakin, Vladimir Aleksandrovich Rusanov (Moskva 1987), p. 121-22.
129. Pinkhenson, op.cit., p. 415, Krypton op.cit., pp. 130-131.
130. Prospector in Siberia. The Autobiography of Jonas Lied (New York 1945) p. 45.
131. Ibid. p. 112.
132. Prospector in Siberia, p. 112.
134. Lied op.cit., pp. 115-123.
135. Lied, op.cit., p. 190. Francis Sejersted, "Veien mot øst" in Langholm, S., Sejersted, F. (ed.), Vandringer. Festskrift til Ingrid Semmingsen (Oslo 1980), pp. 188-189.
136. Armstrong, The Northern Sea Route. Soviet Exploitation of the North East Passage, p. 13.
137. Pinkhenson, op.cit., pp.9-10.
138. William Barr, "The Drift of Lieutenant Brusilov's 'Svyataya Anna' 1912-1914", p. 23. Lied, op.cit., pp. 184-85.
139. Pinkhenson, op.cit., pp. 424-25.
140. In 1918 and 1919 the Kara Sea Route was to a certain extent used by the White government in Archangel and the Anglo-French-American intervention forces to keep up communications with Western Siberia.
141. Krypton, p. 142.
142. Jonas Lied, Prospector in Siberia, p. 112-13.



The three main cooperating institutions of INSROP

Ship & Ocean Foundation (SOF), Tokyo, Japan.
SOF was established in 1975 as a non-profit organization to advance modernization and rationalization of Japan's shipbuilding and related industries, and to give assistance to non-profit organizations associated with these industries. SOF is provided with operation funds by the Sasakawa Foundation, the world's largest foundation operated with revenue from motorboat racing. An integral part of SOF, the Tsukuba Institute, carries out experimental research into ocean environment protection and ocean development.

Central Marine Research & Design Institute (CNIIMF), St. Petersburg, Russia.
CNIIMF was founded in 1929. The institute's research focus is applied and technological with four main goals: the improvment of merchant fleet efficiency; shipping safety; technical development of the merchant fleet; and design support for future fleet development. CNIIMF was a Russian state institution up to 1993, when it was converted into a stock-holding company.

The Fridtjof Nansen Institute (FNI), Lysaker, Norway.
FNI was founded in 1958 and is based at Polhøgda, the home of Fridtjof Nansen, famous Norwegian polar explorer, scientist, humanist and statesman. The institute spesializes in applied social science research, with special focus on international resource and environmental management. In addition to INSROP, the research is organized in six integrated programmes. Typical of FNI research is a multi-disciplinary approach, entailing extensive cooperation with other research institutions both at home and abroad. The INSROP Secretariat is located at FNI.