



The White Sea–Baltic Canal

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MAY 2003 MARKED the seventieth anniversary of the opening of the White Sea–Baltic Canal, the first waterway built by prisoner labor. Since its design phase, views on its expediency and its economic rationality have differed dramatically. Official Soviet publications of the 1930s, particularly articles by K. Lepin and I. S. Isakov and the “History of the Construction of the White Sea–Baltic Canal,” published in the *History of Factories and Plants* and edited by Maksim Gorky, proclaimed the canal a success—even though Gorky’s book was later banned in 1937. Starting in the 1980s, the activity of the Gulag in Karelia and its construction of the White Sea–Baltic Canal were subject to harsh criticism, for example, in Solzhenitsyn’s *The Gulag Archipelago*. More recent publications give negative assessments of the canal.¹ This chapter

1. For a list of publications, see K. Lepin, *Belomorsko-Baltiyskiy Vodniy Put’ i Rekonstruktsia Mariinskoy Sistemy* (Vodniy Transport, 1932, No. 7); I. S. Isakov, *Belomorsko-Baltiyskaya Magistral’*, *Morskoy Sbornik*, 1932, No. 11–12); M. Gorkiy, L. Averbah, S. Firin (ed.), *Belomorsko-Baltiyskiy Kanal Imeni I. V. Stalina* (Moscow, 1934); *Istoria Otkrytiia i Osvoeniia Severnogo Morskogo Puti* (t. Sh-1U L. 1959–1969); *GULAG v Karelii 1930–1941, Sbornik Dokumentov*, (Petrozavodsk, 1992); G. M. Ivanova, *GULAG v Sisteme Totalitarnogo Gosudarstva*

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uses Gulag archives to study the construction of the White Sea–Baltic Canal, using the same documents that its builders used some seventy years earlier. Chapters 3 and 6 mention the pivotal role of the White Sea–Baltic Canal in the history of the Gulag. The canal served as a testing ground for the use of forced labor in a massive infrastructure project. The canal's speedy completion provided an impetus for other similar projects, such as Dalstroi and the Moskva-Volga Canal.

BACKGROUND

The notion of a canal that would connect the Baltic and White Seas through the eastern territories of Karelia dates back to Peter the Great, who three hundred years ago made the first transfer of sea crafts from the White Sea to the Baltic Sea. The idea of a canal was promoted over the next two hundred years, mainly by local authorities. For example, promoters in the Onega Lake region developed two canal-construction projects, and a military expedition of 1798 and 1799 conducted a preliminary investigation in eastern Karelia but concluded that such a canal was not feasible. Nevertheless, canal designs continued to be drafted and discussed in 1824, 1835, 1855, 1867–75, 1889, and 1894 but failed to move forward. In each instance, construction costs were too high for private financing, and state financing was not available. From 1895 to 1909, the focus on a northern connection was shifted to railway construction from Vologda to Arkhangelsk. In 1909 the canal notion was revived without consequence by the Russian Technical Society, and after the start of World War I, the notion was raised three times in the

(Moscow, 1997); Yu. L. Diakov, *Razvitie Transportno-Dorozhnoy Seti SSSR v 1941–1945 gg.* (Moscow, 1997).

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Naval Ministry but was never carried beyond preliminary investigation.²

Soon after the October Revolution of 1917, discussions of the White Sea–Baltic Canal project resurfaced. In the spring of 1918, the Supreme Economic Council of the Northern Region drafted a regional transportation plan, which included a White Sea to Ob railroad line and an Onega to White Sea canal. According to the plan, the railroad and canal would become the main axis of the northern transportation system, provide the base for developing the Ukhta-Pechersk oil region and the Kola mining region, and connect the northwestern industrial region with Siberia. In March of 1918, the University of Perm and the Supreme Economic Council prepared to dispatch research groups to these regions, but these plans were interrupted by the civil war.³

It was not until the spring of 1930 that the executive branch of the Soviet government, the Council of Labor and Defense, issued a report titled “Construction of the White Sea–Baltic Canal,” which provided an economic and a military justification for the canal. The report proposed a canal of 18 feet (5.5 meters) depth. A canal of this depth, it was argued, would allow the transfer of navy ships and equipment from the Baltic Sea to the northern seas and would offer the economic advantage of the shipment of goods from the industrialized regions of the north central USSR to the north. The report’s authors proposed three stages of construction. The first stage would require the blocking of the Neva River and would be the cheapest stage, requiring no more than 20 million rubles. The second stage required the blocking of the Skvira River (by construction of two hydroelectric power stations) that would allow access

2. I. S. Isakov, “Belomorsko-Baltiyskaya Vodnaya Magistral,” *Izbrannye Trudy* (Moscow, 1984), pp. 490–498.

3. *Istoria Otkritia i Osvoenia Morskogo Severnogo Puti*, t.Sh.L. 1959, pp. 31–33.

of ships to Lake Onega and would permit shipment of timber and other cargo from Mariinsk and Leningrad to a new port in Vyterg. Considering the large scope of hydraulic engineering, the cost of the second stage was estimated at 77 million rubles. The third stage, consisting of building a sea canal from Povenets to Soroki and a seaport in Soroki, would be the most expensive at 253 million rubles. The authors emphasized that the last (northern) portion of the canal had not been studied intensively, and therefore the final cost of the project could increase.⁴ Thus as of the spring of 1930, the cost of a White Sea–Baltic Canal was estimated at a minimum of 350 million rubles.

The Council of Labor and Defense proposed to create a special committee, headed by Politburo member Ia. E. Rudzutak and including G. G. Yagoda, the deputy minister of the OGPU. This special committee formed a construction administration, subordinate to the transport ministry, to design and construct the southern section of a waterway, but the fate of the northern track (i.e., the canal itself) remained unclear. Despite this uncertainty, the construction administration began its work in the 1929–30 plan year. On May 5, 1930, their draft report was discussed at a meeting of the Politburo, whose reaction was ambiguous with divergent opinions expressed on the project's advisability and practicality. During the Politburo discussion, notes were exchanged between Stalin and Molotov. Stalin wrote: "I think that it can be constructed up to the Onega. But as to the Northern track, let us limit it to an investigation. I mean it should be constructed mainly by the OGPU. Simultaneously, it is necessary to recalculate the costs for the first part of the construction; 20 million plus 70 million is too much." Molotov's reply summed up the main doubts of the other Politburo members: "I doubt the expediency of the canal. I have read your note, but the

4. GARF 9414.1.1806: 2.

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economic part is not clear. Maybe we should consider redrafting.”⁵ It is worthy of note that at the first discussion of the canal project, Stalin had concluded that the canal should be built by the OGPU—that is, by prison labor.

The skepticism of Molotov was clear. In comparison with the detailed and lucid strategic-military section of the draft, the economic blueprints were not specific. The authors considered only two economic benefits: the increase in timber exports and the opening of better supply routes to Siberia. The lack of precision in economic effects was to be expected because, by the end of the 1920s, northern economic development remained in its infancy. As of 1930 only the Kola Peninsula’s mining industrial complex was under construction.

During later Politburo meetings, the supporters of the canal, including Stalin, prevailed and planning continued, though with major compromises to appease the opposition. Construction was planned to begin on the southern part of the canal, from Leningrad to the Onega Lake, in the following economic year. Cost estimates were cut by one-third on the condition that “the total cost of construction of the Southern track not exceed 60 million rubles.” Northern construction would be researched but, to cut costs, designers should “take into account any opportunity to use prison labor.”⁶ The northern track region was unpopulated and required colonization. The lack of infrastructure would raise the cost of hired labor excessively.

The official decree issued by the Committee of Labor and Defense mandated that construction commence on June 3, 1930. The decree reads as follows:

The Committee of Labor and Defense decrees that: 1. The construction of the White Sea–Baltic Canal is planned. 2. The trans-

5. *Pisma I. V. Stalina V. M. Molotovu 1925–1936gg. Sbornik Dokumentov* (Moscow, 1995), pp. 214–215.

6. *Ibid.*, 214.

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port ministry is obliged to start technical research, cost calculation, construction schedules of the whole canal, and preparation of a report for the Commission for Labor and Defense through Gosplan by Sept. 1. Southern construction should begin on October 1, 1930, and should take two years. All the necessary construction facilities will not exceed 60 million rubles and will follow the scheduled guidelines of the years 1930/1931. The geological and technical research of the northern track will be done in cooperation with the military department and the OGPU.

The number of members of the design team, including new experts and OGPU personnel, grew steadily. At the end of May 1930, the Administration of the White Sea–Baltic Canal (later renamed Belomor) began its work on Myasnitskaya Street in Moscow. As its work progressed, the design team had to grapple with a number of problems.

The first stage of construction was to provide a sluice on the Neva River, and the second stage was to provide locks on the Svir River. Simultaneous design work was begun on both projects in order to meet the tight two-year deadline. For a deep-water canal, it was necessary to build three dams equipped with sluices for deep-water ships, but the preparatory work revealed that the planned depth of eighteen feet could not be achieved in only two years. An accelerated plan of action was proposed that would require “a significant quantity of our own and imported equipment.” A list of equipment requirements was formulated with the idea of bringing petitions to the respective building organizations for purchasing equipment abroad or for initiating manufacture in domestic factories. The long list of equipment requirements disclosed that the southern waterway was in a financial trap. Equipment purchases and substantial import requirements would raise the cost well in excess of the 60-million-ruble budget.

The first results of research on the more costly northern track

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were reported at the end of August. Research began on June 14, 1930, when three hundred technical engineers and six hundred workers arrived “to explore an area that lacked realistic maps and to make general geological research for use in designing both economic and technical elements.”⁷ The team’s task was to consider a western deep-water variant and an alternative route that had lower water accumulation in its basin and needed less excavation work, thus saving tens of millions of rubles. Overall, the designers envisioned the building of a huge waterway designed for deep-draft ships. In the south, the locking of the Svir River and the deepening of its channel could be accomplished, but the construction of the locks on the Svir required enormous numbers of qualified personnel, and dredging required 30 caravans of dredge ships at an added cost of 46 million rubles.⁸ At the beginning of 1931, only 144 dredge ships were available in the entire Soviet Union to work on internal canals, and new ships were not being produced. These obstacles cast doubt on the feasibility of the schedule (completion by 1932) and of the budget. The total cost was estimated at 353 million rubles, including the northern track that, in itself, cost 321 million rubles. The project cost included the expenses for dredging and excavation equipment (the 30 dredgers and excavators that were not being produced in the USSR). These expenses alone totaled 45 million rubles, 25 million of which were required for the first year.⁹ The projected cost of the canal had therefore increased from the 60 million allotted for the southern route alone to 353 million rubles.¹⁰

The increasing design difficulties and increases in cost estimates aroused skepticism among top Soviet leaders. A letter from Stalin to Molotov dated September 7, 1930, stated that, “I heard Rykov

7. GARF 9414.1.1806: 28.

8. GARF 9414.1.1806: 30.

9. GARF 9414.1.1806: 21–25.

10. To provide a frame of reference, 353 million rubles constituted 20 percent of the 1930 investments in transportation.

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and Kvirinev want to halt the progress of the Northern canal despite the decision of the Politburo. Therefore it is necessary to attack and punish them. It is also necessary to reduce the finance plan to a minimum.”¹¹ Stalin insisted on continuing the project using domestic resources and cited strategic-military considerations, using the support of the military to bolster his case. The transfer of naval forces around Scandinavia was extremely difficult without extensive time for preparation. In the absence of a canal, the military argued that a separate northern naval force was required. The navy would gain considerable new flexibility if it could transfer ships by way of an inland waterway. But the military transfer of submarines, guard ships, and destroyers required a substantial depth on the Svir lock to avoid the necessity of removing arms, ammunition, and fuel to reduce the draft of the ships.

On November 29, 1930, the deputy director of the Gulag, Y. Rappoport, and his chief assistant sent a report to the deputy minister of the OGPU and head of the canal project, Yagoda, warning of complications in dredging the whole canal and calling for the use of only Gulag prisoners. Before this report, only construction of the northern track was intended to be carried out by prison labor, and the rest by free labor. The decision to use forced labor throughout the entire construction of the canal did not solve all financial problems because the Gulag did not have canal equipment. Moreover, the OGPU lacked skilled labor. It had only two dredge engineers, eight to ten technicians, and ten to fifteen excavators among its prisoners. The report’s authors suggested that “a few skilled workers be arrested,” but even then, there would still be a shortage of skilled personnel.

After analyzing the project proposals, the government made a final decision to proceed with canal construction. The Labor and

11. *Pisma I. V. Stalina V. M. Molotovu 1925–1936 gg. Sbornik dokumentov* (Moscow, 1995), p. 214.

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Defense Council decided, among other things, the following: The depth of the White Sea–Baltic Canal was set at ten to twelve feet (instead of eighteen); the canal was to be completed by late 1932; the project would cost no more than 60 to 70 million rubles; and no currency would be allotted to purchase equipment abroad. Unstated, but understood, was the fact that the canal would be built with prison labor. These requirements were difficult to fulfill, since prisoners were designing the canal structures, and they lacked skilled technical and engineering experience. Among them, a professor, V. N. Maslov, created a unique wooden sluice gate capable of maintaining the multiple pressures of the water. This and all the other structures were to be built using local materials and with little use of steel and concrete. The schedule called for intense work, with prisoners working up to sixteen hours a day. On July 1, the project draft was ready, and the Special Committee approved it the very same day. In its final version, the design provided for a transport route of 227 kilometers, 128 hydraulic structures, 19 sluices, and 49 dams. The final estimated cost was 88 million rubles,¹² well below the 353 million originally estimated by civilian planners.

With the project's approval, the Special Committee ordered the beginning of construction. The OGPU began a massive transfer of prisoners, making its correctional labor camp the largest supplier of workers. In mid-1931, according to the report from Yagoda, the number of prisoners rose to more than 100,000 from 72,000 and continued to grow. In 1931, a total of 1,438, or 2 percent of the annual average number of prisoners, died. The death rate rose toward the end of the year because of the increasing industrial losses and deteriorating food supply. A letter from Yagoda to Stalin and Molotov, dated December 31, 1933, explained the reasons for the sharp rise in the death rate. It spoke, among other difficulties, of the

12. GARF 5446.12a.1065: 66.

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Table 8.1 Food Supplies for Prisoners, 1932 and 1933 (kg)

<i>Name of the product</i>	<i>Norms in 1932 (Monthly)</i>	<i>Norms in 1933 (Monthly)</i>
Flour	23.5	17.16
Oats	5.75	2.25
Macaroni	0.5	0.4
Vegetable oil	1.0	0.3
Adipose	0.15	presumed zero
Sugar	0.95	0.6
Confectionery products	0.5	0.5
Different canned food (in cans)	2 cans	presumed zero

insufficient supply of food. Table 1 shows the changes in food rations in 1933 as compared with 1932.

This sharp decline in the food supply weakened prisoners especially in spring, when the danger of beriberi was greater. Spring floods and accidents associated with the building of large structures were added causes of the rising death rate during the spring.

Work on the canal required considerable innovation because of the lack of equipment. Engineers improvised waterproof screens, allowing materials to be separated and water to flow freely. Wooden barrow trucks, ironically called “Fords,” were created by skilled prisoners to remove stones from trenches. The camp also mastered the use of primitive wooden derrick furnaces to melt iron and steel. They produced more than a thousand tons of home-produced iron to manufacture other necessary materials. Prisoners were organized into brigades and phalanxes. A brigade consisted of 25 to 30 manual laborers, including diggers, fitters, and wheelbarrowers. A phalanx consisted of 250 to 300 men and carried out complex tasks.

Prisoner motivation played a large role in achieving goals and meeting norms. Besides intangible incentives (honorary banners, gratitude, and diplomas), material incentives were also used. Those with exemplary performance received supplementary rations (up to

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twelve hundred grams of bread), a bonus dish (usually consisting of pies with cabbage or potatoes), and other material awards. The most effective motivator was work credits given to reduce the term of sentence. Refusal to work or falsification of industrial indices (called *tufta* in camp slang), called for punishments including food reduction, intensified supervision, work-credit cancellation, and possibly prosecution.

By the beginning of 1933, most canal structures were completed, but “gaps,” such as the watersheds between Vodlozero and Matkozero, remained. Spring floods threatened to break dams and damage canal structures if the gaps were not closed. Work was accelerated, and sporadic efforts were made to complete the watershed. On May 28, 1933, the canal was opened, even though still incomplete. The steamship *Chekist* led the first caravan. The White Sea–Baltic Canal was finished, costing 101 million rubles compared with the estimated cost of 88 million rubles. The first group of ships of the Baltic Fleet made their first transfer on the canal and arrived on July 21, 1933, at Sorokskaia Bay, thereby creating the core of the Northern Military Fleet.

AN EVALUATION

The capacity of the White Sea–Baltic Canal was grossly underused before the war. In 1940 the total transportation volume was one million tons, only 44 percent of the design capacity. The economic importance of the waterway remained insignificant (see Chapter 9). However, the strategic-military importance of the canal was a different story. Before the beginning of World War II, seventeen transfers occurred using the canal and including an array of ships, such as destroyers, submarines, and guard ships. Although Chapter 3 emphasizes the difficulty of moving naval ships through the canal, this view was not shared by the USSR’s allies and enemies. Western military intelligence realized the importance of the canal for the

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defense of the USSR. In 1940 when England and France were preparing to land in the northern area of the USSR to assist Finland, they insisted on capturing and using the canal to capture Leningrad. All the operative plans of the Finnish army provided for the capture or disabling of the canal because it was considered “the main support” of the Soviet regime in Karelia. In May of 1941, a German naval attaché worried that the canal could link the Russian Baltic and other northern fleets. It is unclear whether the Soviet Union’s actual and potential military opponents overestimated the importance of the canal, but in any case, they considered it an essential part of the USSR’s naval military power.

The fact that the Gulag designed and built the White Sea–Baltic Canal on time and on budget had an enormous effect on the Gulag’s development. Large infrastructure projects scheduled for construction by civilian ministries were turned over to the Gulag. By the mid-1930s, the Gulag was the Soviet Union’s largest construction organization. The Soviet dictatorship felt justified in its conclusion that prison labor offered a mobile and cheap solution to the nation’s infrastructure problems.