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THE CONQUEST OF A CONTINENT

Siberia and the Russians

W. Bruce Lincoln

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later, for the vast dimensions of Siberia's time and space were shrinking as it entered the twentieth century. As on the world's other virgin lands, steam power and the railroad came to Siberia at the end of the nineteenth century, and with them came all of the problems and progress they had brought to human civilization elsewhere. Now the technology that had brought San Francisco within a week's journey of Chicago and New York brought Irkutsk to within a fortnight of Moscow and put Vladivostok less than a month's distance from St. Petersburg. The Trans-Siberian Railroad that tied these ends of the Russian Empire together became one of the most ambitious undertakings of the world's industrial age and an engineering feat that stood on a par with cutting a path through the isthmus of Panama to join the Atlantic and the Pacific.

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An Iron Road Across Asia

Railroads projected the power of the world's industrialized nations more forcefully than any other invention of the nineteenth century. Natural barriers and great distances all shrank before the march of this amazing instrument of progress as it opened new markets, settled remote lands, and extended the reach of nations far beyond the limits that time and space had imposed in earlier days. Once the railroad had tamed the wild western lands of the North American continent, men began to speak of linking Cairo to Cape Town and Buenos Aires to Valparaíso. Yet, as the century neared its end, the greatest of all challenges remained unmet, for the railroad had still not conquered Eurasia. A railroad from Moscow to the Pacific would rival in magnitude the paths cut between the seas at Suez and Panama. It would, the Russian statesman Sergei Witte announced, "occupy one of the first places in the ranks of the largest and most important undertakings of the nineteenth century."[1]

A trans-Siberian railroad would be one of the most difficult in the world to build, not only because it would be the longest but because construction crews would have to work thousands of miles away from their bases of supply. Rails and bridge iron would have to be brought to Siberia from foundries as far away as St. Petersburg and Warsaw, ties would have to be cut in European Russia and shipped across the Urals because almost no hardwoods grew in the steppe or the taiga, and stone for bridge piers and abutments would have to be transported from

quarries on the western frontier of Mongolia.[2] Then, as the tracklayers moved deeper into Siberia, terrain and climate would magnify the obstacles. The endless forests, the gorges cut from solid rock, the mountains of the Transbaikal, the treacherous permafrost, the short winter days, and the deep, deep Siberian cold all presented obstacles on a scale that the world's builders had yet to face.

Midpoint in the railroad's path stood Lake Baikal, larger than Belgium and rimmed by cliffs and gorges that would require more than a hundred miles of roadbed to be cut from solid rock as the tracklayers worked their way around its southern tip. Beyond Baikal, mountains and vast wastes had to be crossed before the land started to slope toward Siberia's Pacific lowlands. Many asked if the hoped-for benefits could be worth the cost and if Russia, the poorest of the world's industrialized nations, could afford to build such a railroad. Champions of the idea insisted that the prestige alone would be worth the price. The "numerous benefits" of such an undertaking, one of them wrote, "were not subject to direct arithmetical calculation."[3]

Debates about cost, routes, and design postponed the beginnings of a trans-Siberian railroad for several decades. By the middle of the 1880s, Russia's state debt was approaching six and a half billion rubles, and a full quarter of the national budget—more than the costs of the army and navy combined—had to be spent to pay the interest.[4] Conservative fiscal experts worried that the loans needed to pay for laying five thousand miles of track across Siberia would undermine Russia's credit in the money markets of Europe, and none feared that more than Finance Minister Ivan Vyshnegradskii. Thought by some to be "[more like] a cashier than a minister,"[5] Vyshnegradskii saw in the proposals for a trans-Siberian railroad an immense Pandora's box filled with inflated expenditures and lined with such immense costs that he wanted Russia to have no part of it. Himself a kopek pincher of legendary prowess, Russia's Emperor Alexander III shared Vyshnegradskii's reluctance to spend money, but he wanted the railroad for reasons of national security, international prestige, and hoped-for economic advantages nonetheless. Alexander thought that it would be enough to say, as he wrote in the margin of a report at the end of 1886, that it was "high time" to build the railroad[6] and insist that it must be done "quickly and cheaply."[7] Once he had opened the way for the railroad, he left it to others to find the means with which to build it. The emperor had set the course; others would have to plot its precise headings.

The wave of strident nationalism that had surged up after revolutionary terrorists had assassinated his father had shaped Alexander III's vision of Russia's course in the 1880s. A chauvinist pure and simple, he was powerfully drawn to a railroad that could make Siberia more "Russian" and strengthen the political forces that he and his advisers thought would serve Russia best. "The entire future of Siberia lies in its close unity with the rest of Russia," one supporter of that point of view wrote. "Siberia is not a colony of Russia," he added, "but Russia itself."[8] Others disagreed and insisted that Siberia must follow a more independent course because its interests no longer coincided with those of the empire that ruled it. A railroad built to move Russian armies more quickly into the Far East, these men warned, would make it more difficult for Siberia to choose an independent path and would bind it more closely to an empire of which it ought not to be a part. In 1882, such "regionalists" seized upon the tercentenary of Ermak's "conquest" to emphasize their views. Among them, Nikolai Iadrintsev, a distinguished scholar whose massive corpus of work in archaeology, ethnography, history, geography, and journalism could have provided enough in the way of accomplishment to satisfy half a dozen lesser men, pleaded Siberia's case against the railroad with the greatest eloquence.[9]

Iadrintsev insisted that the men and women he called "Siberians" were a "unique ethnic type" produced by the union of Russian trappers, soldiers, and colonists with Siberian natives. These new "Siberians," he argued, were more practical than their forebears, more self-reliant, and more capable of shaping their destiny. Such men and women had lived a different history than the Russians had. Because there had been no serfdom in Siberia, the political, economic, and social tensions that stemmed from the centuries-long oppression of serfs by masters in European Russia had not touched their lives. Such "Siberians," Iadrintsev wrote, thought of modern-day Russians as exploiters. Bent upon abusing the people and resources of less developed lands for the gain of the Russian "metropolis" (to use the colonialist language current all across Europe and the United States at the time) they hoped to find better ways to strip Siberia of its treasures. Talk among such "foreigners" about building a trans-Siberian railroad made Iadrintsev's "Siberians" very wary indeed.[10]

Led by Iadrintsev, Siberia's regionalists feared that a transcontinental railroad would make Siberia's people the subjects of Russian masters. "The invasion of a railroad civilization, grasping and greedy," one of them wrote, would give the Russians an even stronger grip on Siberian affairs and pull Siberia away from the course that promised to bring it closer to China, Japan, and the United States of America. "With the construction of the railroad," one regionalist newspaper warned, "the

old familiar Siberia will disappear forever." In the orgy of speculation that inevitably would follow, "people of easy money, shady characters, [and] swindlers" would destroy "the healthy traits of Siberian life."[11] Siberia and the "Siberians" would become the prey of absentee landlords, absentee mine owners, and absentee industrialists. In a massive repetition of the British and Belgian experience in Africa, the "Siberians" would become victims of Russia's imperialists.

But Iadrintsev and the regionalists were neither so backward nor so blind that they failed to see the advantages that railroads could bring to the society they served. A trans-Siberian railroad could place Siberia at the crossroads between the Orient and the West and enable it to play a key part in "the unification of the worlds of Europe and Asia."[12] Especially if a branch of the railroad were built to Peking, they pointed out, Siberia might become "heir to the prosperity of Venice and the Cape of Good Hope," both of which had "served as way stations between Europe and Asia" in earlier times.[13] The danger therefore lay not in the railroad, but in the Russians' intention to use it to strengthen their authority in the Far East and tighten their grip on Siberia's people and resources. Before the railroad came to Siberia, Iadrintsev and his followers wanted to build defenses against the Russians.

The regionalists insisted that Siberians needed to be educated and modernized before they could reap the railroad's advantages and that Siberia needed more people, more factories, and more regional trade before it needed a transcontinental railroad.[14] "Why is it that people who want to do good for Siberia and . . . speak so heatedly of billions for a railroad do not apply themselves to . . . maybe more significant tools of civilization [such as people's schools and technical institutions]?" the regionalists asked.[15] "Building a railway into Siberia," one of Iadrintsev's friends wrote, "means beginning the matter from the tail end first."[16] Self-government, such limited civil rights as the great reforms of the 1860s had bestowed upon the men and women of European Russia, modern law and law courts, and widespread education all needed to come first. Otherwise, everything that made Siberia and the "Siberians" unique would be lost.

Finance Minister Vyshnegradskii agreed with part of that view but defined the objective of cautious spending differently. A priest's son who had become a professor of mechanical engineering at St. Petersburg's Technological Institute before he entered government service, Vyshnegradskii wanted Russia to build no more railroads anywhere until "salutary thrift in government expenditures" could be achieved.[17] Even though prices on the world grain market were plummeting, he tried to

increase his country's grain shipments to Western Europe during the late 1880s and, in the process, created one of the worst famines of the nineteenth century. Vyshnegradskii's failed plan added the burden of massive famine relief to the obligations of the Imperial Treasury at just the moment when the advocates of the Trans-Siberian Railroad seemed to have victory within their grasp.

In February 1891, just a few months before the famine struck, Alexander III and the Imperial Committee of Ministers had agreed that "*a continuous line* from the Urals to the Pacific Ocean"[18] (and not a fragmented series of west-east rail portages to connect Siberia's river transport routes as Vyshnegradskii had proposed) must be begun "very soon."[19] Part of the reason for their decision lay not in the politics of the Imperial Court but in the reaction of Russia's archconservatives to the pressures that Iadrintsev and his allies had been exerting upon the government for the better part of a decade. Fearful that a railway into Siberia would open the floodgates of colonization and deprive landlords in European Russia of the migrant workers who tilled their fields for very low wages, several reactionary Moscow newspaper editors, including some of the emperor's most trusted supporters, had begun to urge Russia to defend herself against the forces of political change that modern technology was beginning to unleash. Chauvinism, they believed, was Russia's best weapon against the forces of constitutionalism and reform that reigned in the West. Foreigners, they said—and Jews most of all—were carrying these evil forces into the Russian Empire. "Permit the construction of the Siberian Railroad today," the tsar's friends warned, and "tomorrow Siberia will be given up forever to the Jews of the whole world."[20]

If Russia's archconservatives harbored an "apocalyptic fear" of what damage the Jews might inflict upon Siberia,[21] they also worried that Iadrintsev and his regionalist comrades might bring to Russia the liberalism that reigned in the West. Could the Russians, they asked, claim that they had brought Siberia fully under their control in the three hundred years since Ermak? Some insisted that they could not and that the railroad was the best instrument for tightening their grip upon lands and natural wealth that might otherwise slip away. This set the stage for the unlikely alliance between archconservatives and progressive imperialists that overwhelmed Vyshnegradskii's attempts to put off beginning the Trans-Siberian Railroad.

Work on the railroad began in 1891, the year of the great famine. Symbolic of the unstable forces that made its beginning possible, the first shovelful of earth on the Trans-Siberian Railroad was turned at its

easternmost terminus of Vladivostok, while the real work of building it began more than four thousand miles farther west in the foothills of the Ural Mountains. Would the railroad become, as one source later claimed, "such a mighty influence on the growth of economic life in Siberia that its commercial success ... [would exceed] the most extravagant expectations"?[22] Or would it, as others remarked with unconcealed disdain, simply become thousands of miles of "rusty streaks of iron through the vastness of nothing to the extremities of nowhere"?[23]

The ceremonies at Vladivostok that marked the Trans-Siberian's beginning were presided over not by the emperor who had ordered it to be built nor even by the ministers who had supported him in doing so. On Sunday, May 19, 1891, Grand Duke Nicholas Aleksandrovich, soon to ascend the throne as Emperor Nicholas II, stood before a crowd of dignitaries, set his spade firmly into the soil of Imperial Russia's "Mistress of the East," turned its contents into a small wheelbarrow, and then held a ceremonial breakfast to celebrate the event. The railroad's purpose, he announced as he read the decree that his father had written for the assembled guests, was "to connect the natural abundance of the Siberian lands with [Russia's] network of rail communications." St. Petersburg's imperialists had triumphed over Iadrintsev and Siberia's regionalists.

To reach Vladivostok for the ceremonies that began work on the railroad, the future Nicholas II had traveled by sea on a grand tour that had carried him from St. Petersburg to the pyramids of Egypt, the jungles of India and Ceylon, and the recently medieval (but now rapidly modernizing) islands of Japan. To symbolize Russia's claim to Siberia, the tsarevich then returned to St. Petersburg by land, visiting cities in which none of his dynasty had ever set foot. During the summer of 1891, Nicholas visited Lake Baikal and from there moved quickly west along the great Siberian *trakt* that many nineteenth-century travelers had cursed as the worst road in the world. In the course of his three-month journey Nicholas saw no ruts, no vermin-infested public rooms, and no fly-speckled menus that advertised such delicacies as *rostbif* and *bifshteks* but offered only stale bread and salted fish. The road had been smoothed, the crumbling bridges repaired, and the post stations cleaned, painted, and freshly supplied. Russia's tsarevich saw Siberia at its very best, as only the heir of an absolute sovereign could hope to see it.[24]

No other Romanov had ever been seen in most of the parts of Siberia that Nicholas visited, and the Siberians' enthusiasm for their emperor-to-be seemed to speak against the regionalists' passionately stated distrust of their Russian masters. Buriats, Tungus, and Kirghizes cheered

the tsarevich in Irkutsk and Krasnoiarsk. At Tomsk, he visited Siberia's first university, opened just three years before as a concession to those regionalists for whom Iadrintsev continued to speak so eloquently.[25] Then, toward the end of his journey, Nicholas reached Tobolsk, now more than three centuries old, to which fate had bound him most closely of all. From the province of which Tobolsk was the capital would come Grigorii, "a man of God" as Nicholas later wrote, who would be known to the world as Rasputin.[26] In Tobolsk, as prisoners of the Bolsheviks, Nicholas, Aleksandra, and their children would spend the last winter of their lives in 1917–1918.

Not only would Siberia retain a special significance for Russia's last emperor, it also initiated him into the complexities of statecraft when his father named him to preside over the special committee formed on December 10, 1892, to oversee the railroad's construction. At first, Nicholas moved timidly, unsure of his own ground, aware of his father's lack of confidence, and dependent upon Russia's new minister of finance, Sergei Witte. One of the last great statesmen of Imperial Russia and the Trans-Siberian's guiding genius, Witte used his influence over Russia's inexperienced tsarevich to push ahead with the Trans-Siberian Railroad at full speed. Soon convinced that the railroad would help the Russians to pursue their mission to "civilize" the Asians with greater success, Nicholas began to speak of exporting autocratic and Orthodox Christian principles to the East. He began to think that Siberia must become Russia's first line of defense against the "yellow peril" that he and his countrymen feared was about to arise in Asia.[27]

Born into a family of Baltic Germans who were allied by marriage to some of Russia's most illustrious aristocrats, Sergei Iulevich Witte at the age of forty-two combined a Spanish conquistador's thirst for adventure with a politician's love of behind-the-scenes intrigue. No less than Cecil Rhodes or Lord Curzon, he thought that colonization could bind the underdeveloped lands of the world more closely to the "metropolis" of Europe, and he saw Siberia's natural resources and industrial potential as one of the guarantees of Russia's greatness in the century that lay ahead. Unlike so many of his Russian contemporaries, who looked to Europe and thought of their homeland as part of the West, Witte believed that the Eurasian empire he served was fated to play a pivotal role in shaping the destinies of both continents. Russia, he insisted, must look west and east, and in the near term, he thought, the east would be more important.[28]

With most of her coastline icebound for much of the year, Russia had never been able to challenge her Western rivals in international trade,

but Witte looked forward to a day when the world's east-west commerce could be shifted from the high seas to the Trans-Siberian Railroad. He therefore wanted to build the railroad quickly, but, because the great famine of 1891 had shattered the fragile foundations upon which Vyshnegradskii had erected his façade of prosperity, he had to restore Russia's economic stability at the same time. With his grandiose belief that "a minister cannot practice economy in the administration of a state"[29] standing in stark contrast to Vyshnegradskii's rigid fiscal conservatism, Witte insisted that it was "better [for a government] to lose money than prestige."[30] Only deficit financing could accomplish both tasks at once. "Money," Witte once explained, "can only be found by spending it lavishly."[31]

Yet Witte drew his sense of mission from more than abstract political principles. No matter how a transcontinental railroad might improve Russia's standing among the great colonial powers of Europe, the real force that drove him to build the Trans-Siberian was the will of his emperor. "The Emperor Alexander III told me of his desire, of his dream, that a railroad be built from European Russia to Vladivostok," he later wrote. "He asked for my word that I would complete this task," he added, "[and] I tried to do so as quickly as possible."[32] Witte's efforts to accomplish that feat from the security of St. Petersburg's chanceries revealed the breadth of Siberia's potential and the limits of the Russian bureaucracy's ability to shape the economic and political development of the empire it labored to govern. Using his influence over Russia's tsarevich to push ahead too quickly, Witte make the world's longest railroad a flawed gem at best.

29

Building the World's Longest Railroad

Built by workers and engineers who struggled to lay track across the largest landmass on the globe, the Trans-Siberian Railroad was planned by bureaucrats in the chanceries of St. Petersburg. Even though Witte's Committee on the Siberian Railroad was supposed to stand apart from the rivalries of chancery politics, interagency squabbles and bureaucratic mind-sets reduced many of the broader debates about how the railroad should be built to questions of personal preference and political necessity. Despite Witte's grand words about deficit financing, budgetary constraints forced curves to be cut more sharply than sensible engineers thought safe and grades to be inclined more steeply. Building the railroad cheaply and quickly remained the bureaucrats' first concern; safety and efficiency therefore had to count for less than in the West, where American and European entrepreneurs built railroads to move goods and people at speeds that would reap greater profits. There seemed to be something in the Russian psyche that could overlook the failings that this process produced, even though many of the trains averaged barely thirteen miles an hour once the Trans-Siberian was finished.[1] "Why go so fast?" one Russian asked when he heard that European trains traveled at up to four times greater speed. "If a man is in such a hurry to get somewhere, can he not take an earlier train?"[2]

At first, Russia's massive national debt made it difficult to see where the funds for building the Trans-Siberian would come from. Proclaim-

ing that "whatever the government's needs may be, they must be satisfied,"[3] Witte insisted that the railroad could be financed by "surpluses" in Russia's budget, and he then tried to create those surpluses by floating new foreign loans and reporting them as "income."[4] In part, Russia's improved relations with France helped to bring in the funds Witte needed. So did the political stability that Alexander III had imposed upon Russia and the Imperial Treasury's scrupulous attention to paying the interest on its foreign debt on time and in gold. In the end, money for the Trans-Siberian therefore proved to be less difficult to come by than Vyshnegradskii had feared, but Witte's policy of spending now and paying later had to have its day of reckoning. Inevitably, Russia's workers and peasants would have to shoulder the cost by paying higher taxes.[5]

If new borrowing threatened deeper poverty for the masses, there was a promise of prosperity, too, for Witte insisted that the Trans-Siberian should be built with materials and equipment manufactured in Russia. Never had the nation's industries been called upon to produce so much so quickly, and rarely had its resources been so strained. Rails, spikes, and bridge iron for the railroad promised to consume at least a third of Russia's entire yearly output of pig iron, and the need for coal, iron, and steel spurred new searches for mineral wealth all across the empire. Between 1894 and 1896, fifty-eight geological expeditions explored western Siberia and the Altai Mountains and forty-four more looked for minerals in the lands farther east. Almost overnight Siberia became, as one writer remarked, "a fashionable place for all types of research"[6] as geologists and mineralogists combed its lands for the resources that would feed its industries in the century ahead.

As prospectors discovered new deposits of coal, iron, copper, graphite, lead, granite, silver, and gold, Siberia began to open up, even before the railroad was finished. Foundries, brick kilns, sawmills, and cement factories all had to be built, and each required massive loans from the government. Witte's freely given subsidies made it possible for men to make fortunes as contractors by collecting advances from the government but never supplying the goods and services they had agreed to provide. Others claimed to have gone bankrupt and pocketed the funds they had been given in trust without delivering the materials they had been paid to produce. Contractors often lowered the technical specifications set for gradings and curves to increase their profits. Then, when their crews fell behind schedule, the same men demanded bonuses to complete the work, sometimes at a higher price.[7]

Almost from the beginning, the surveys used by the railroad's builders

proved to be dangerously flawed, and there was a strong suspicion among some experts that up to half of the route had not been surveyed at all before the tracklayers began their work.[8] The railroad's builders were amazed to learn that they would have to dig wells on the Baraba Steppe, whose many lakes, they learned too late, held water that was unfit to drink and too laden with caustic minerals even to be used in locomotive boilers. Nor did anyone guess that in the Transbaikal lands, more than two hundred miles of track would have to be relaid at higher elevations because the surveyors had chosen a route that was submerged by floodwaters nearly every spring and summer. The same problem occurred along the Ussuri River in Siberia's far east, where floods undercut hillsides and turned them into landslides that buried the track beneath hundreds of tons of rock and mud.[9]

Even where the surveys had been done properly, no one knew for certain how to take into account the problems of Siberia's climate and topography. In the eight hundred miles that separated the Urals from the Ob River, the railroad's gradient rose less than five hundred feet, but there was virtually no wood within easy reach. The next twelve hundred miles of dense taiga forest between the Ob and Irkutsk provided huge amounts of wood for fuel and temporary bridges, but none that was hard enough for ties. Then, to lay track between Irkutsk and Lake Baikal, the railroad builders had to blast a roadbed out of the Angara River's sheer rock banks and wedge bridges into deep crevasses that its tributaries had cut thousands of years before. Working in such terrain, it took the better part of four years to cover the forty miles that separated Irkutsk from the lake's western shore.

Intersected by the rugged, heavily forested Iablonovy Mountains and cut by the deep gorges of the Ingoda and Shilka rivers, the lands beyond Lake Baikal spread across an area larger than France and Imperial Germany combined. Here in the Transbaikal the permafrost provided a treacherous foundation, solid one day but apt to become a morass of quaking mud the next. Farther east, almost fourteen hundred miles of riverways separated the eastern end of the main railroad at the town of Sretensk from the Ussuri Railroad, which ran south near Siberia's Pacific coast from Khabarovsk to Vladivostok. The tsarevich Nicholas had turned the first shovelful of earth for the Ussuri Railroad in 1891, but, because the government's surveyors had decided (before they surveyed the route) that the tracks should follow the Ussuri River, scores of bridges had to be built across its many tributaries.[10]

When the railroad's builders set to work, Siberia's entire population totaled scarcely more than five million, some two thirds of whom lived

in a narrow belt that extended fifty miles to the north and south of the railroad's planned route. But nomads and herders who asked more readily about the health of a man's herds and flocks than about his family could not make the transition to the modern world of steam engines, steel track, and dynamite quickly enough to become part of modern-day construction gangs, and Siberia's Russian settlers therefore had to provide the bulk of the labor.[11] As the track moved east, away from the western lands in which most of the Russians had settled, Witte's Committee on the Siberian Railroad had to fill in the thinning ranks of the tracklaying crews with more than fourteen thousand convict laborers and supplement them with army labor battalions and thousands of migrant workers from Japan, China, and Korea.[12] One out of every four of the stonemasons who built bridge abutments and piers for the Trans-Siberian had to be hired from as far away as Italy, for all of European Russia could not begin to supply enough men with the needed skills.[13] Italians, not Russians, thus built many of the massive stone structures that support the Trans-Siberian's bridges and have stood against the force of the huge ice floes that have risen as high as thirty feet every spring for the past hundred years.

As they mounted their huge iron-and-steel structures atop the stonemasons' piers, the bridge builders proved to be the most vulnerable of all the Trans-Siberian's workers, for hypothermia took a high toll among men who had to work unshielded from the wind in subzero temperatures. "They allow their body temperature to run down more than they are aware, with the result that some of them make a slip or find that they cannot get their numbed fingers to grasp a support in time," one contractor explained. Without safety devices to break their fall, frost-numbed riveters and bolters lost their grip and fell to the rock-hard ice below.[14] "This ain't railroad building," some of the workmen were heard to mutter at one point. "It's a battle, a war to the death."[15]

Russians and Europeans who worked on the Trans-Siberian received forty-five rubles a month, or about $23 at the rate of exchange that prevailed at the end of the nineteenth century, considerably more than most factory and farm workers received. Asians earned a little more than half that sum, and convict workers were paid less.[16] These men all ate the roughest food and lived in conditions that grew worse with every mile they moved toward the Pacific, for the Committee on the Siberian Railroad did not arrange for the first dugout shelters to be built until the tracklaying crews had been on the job for the better part of a year. Without sanitation facilities, worried public health officials reported,

these workers' camps suffered so much sickness that it was "impossible [for men] to live under such conditions and retain any shred of human dignity."[17] There was very little difference, in fact, between the barracks along the Trans-Siberian and the housing in Siberia's *katorga* prisons.[18]

During Siberia's long summer workdays, men whose backs took the place of the machines that railroad builders used in the West needed at least four thousand calories, but local supply systems could not provide provisions on such a grand scale. Bread, vegetables, and other staples almost always turned out to be the poorest that money could buy, and contractors sometimes delivered beef cattle to the workers' railside camps that were too sick even to stand. One newspaper reported that some crews received rations of meat and bread "that were so bad that even the local pigs refused to eat them." Other exposés told about rotten food crawling with maggots and tainted with all sorts of filth not fit for human consumption. "The food's so bad around here that it makes you want to puke," an old-timer was heard to tell a detachment of new recruits. "While half of our guys are eating," he went on, "the rest are around the corner puking all over the place."[19]

Even though such working conditions turned the thoughts of do-gooding journalists and later-day Soviet historians to the Hebrews' days of bondage in ancient Egypt, most contemporaries were not overly concerned. Large-scale construction projects at the end of the nineteenth century inevitably produced hazardous working conditions and a great deal of sickness that cost large numbers of lives.[20] While malaria and yellow fever scourged thousands of workers digging the Panama Canal, the men who built the Trans-Siberian faced cholera, typhus, dysentery, scurvy, and the raging carbuncles of anthrax. Bubonic plague struck some of the crews working in Siberia's eastern lands during the summer of 1899 and returned again in 1900.[21] Europeans had not seen some of these diseases since the Middle Ages, but they were common in Asia.

The chronic shortage of medical facilities all along the Trans-Siberian's route raised the toll of lives these diseases claimed.[22] With combined territories of more than nine hundred thousand square miles, the provinces of Tobolsk and Tomsk in those days had only 187 doctors and about five hundred orderlies, midwives, and nurses. Farther east, the province of Eniseisk had sixty-five doctors and no more than three hundred clinic beds for an area larger than all of the United States east of the Mississippi, while the province of Iakutsk, which was larger than all of India, had five doctors assisted by a dozen orderlies and midwives.[23] Workers who got sick from spoiled rations, contracted diseases

that had become rare in more advanced countries, or got hurt in any one of a hundred different ways usually had to cure themselves or not be cured at all.

By the fall of 1900, the Trans-Siberian's builders had laid just over two thousand miles of track to connect Cheliabinsk in the eastern foothills of the Urals with the tiny harbor of Listvenichnoe on Lake Baikal's western shore and had continued another seven hundred miles beyond the lake's eastern bank to Sretensk in the Transbaikal. Fourteen hundred miles farther east, the Ussuri Railroad connected Khabarovsk with Vladivostok, but this still left two great gaps to keep Witte's dream of rails stretching from Moscow to Vladivostok from taking shape. The only link between Sretensk and the beginning of the Ussuri Railroad at Khabarovsk continued to be the Shilka and Amur rivers, and the Transport Ministry's initial surveys showed that more than a hundred bridges and several times that many embankments and cuttings would have to be built before a railroad could connect the two towns. Farther west, the great chasm created by Lake Baikal still remained. Before the 162 miles of track around its southern tip could be laid, two hundred gorges would have to be bridged, thirty-three tunnels cut through rock, and dozens of miles of roadbed hewn from the cliffs that rose sharply from the lake's fog-draped shores.[24] Committed to opening the railroad before the end of 1900 and knowing that it would take a good half decade more to complete these last two segments, Witte's Committee on the Siberian Railroad decided to use riverboats and sledges to link Sretensk and Khabarovsk and steam ferries to bridge the Baikal gap.

The *Baikal*, a huge icebreaking steam ferry that measured nearly three hundred feet in length and displaced over four thousand tons, became the centerpiece of the Russians' plan for connecting Lake Baikal's eastern and western shores. Designed and built during the first half of 1896 by the British firm of Armstrong, Mitchell, and Company, Ltd., the *Baikal* was powered by three 1,250-horsepower engines and able to force its way through thirty-eight inches of ice while carrying twenty-eight loaded freight cars. Because it took two and a half years for all of its components to reach its home port at Listvenichnoe from England, the *Baikal* did not begin service until the spring of 1900. Once afloat, it was a marvel to behold, the first such monument to Western technology ever to reach Siberia's interior. Britain's John Fraser thought the *Baikal* "by no means pretty and rather like a barn that had slipped afloat" when he first saw it, but he hastened to add (for reasons of national pride and respect for the work it had to accomplish) that the ship was "one of the most wonderful vessels in the world."[25]

Laden with locomotives, passenger cars, freight, and up to eight hundred passengers for each crossing, the *Baikal* struggled against ice, fog, and violent summer storms, but with less success than the railroad's planners had hoped. Goods piled up on both sides of the lake and then began to back up all along the line. At one point, seven thousand freight cars were backlogged, leaving tens of thousands of tons of food products to rot on sidings. Then, when Russia's War Ministry sent a hundred and twenty thousand troops to the Far East during the Boxer Rebellion, the congestion at the Lake Baikal gap created chaos all along the railroad.[26] Reluctantly, Witte and his Committee on the Siberian Railroad concluded that the *Baikal* would have to be replaced by a circum-Baikal link that would be laid around the southern tip of the lake.

The bottleneck created by the *Baikal* experiment was only one instance of problems that could have been avoided had the Trans-Siberian's planners paid less attention to short-term savings and concentrated upon building their railroad according to proper specifications. To lay track more quickly and at lower cost, the railroad's builders chose rails that were half the weight of those normally used in the West and proceeded to set them on ties that were more widely spaced. They built the railroad's embankments narrower and lower than their counterparts in the West, left the curves sharper, and graded the inclines more steeply so as to lessen the amount of dirt that had to be moved by men whose main tools were wooden shovels and wheelless barrows. The lightweight rails buckled, and ties set in undrained roadbeds rotted to make the entire railroad unsafe from the moment it opened. Forced to maneuver around hairpin curves and ride on loose rails, the wheels of the Trans-Siberian locomotives wore out sooner than anyone expected, leading an exasperated engineer to remark that "after a spring rain, the trains run off the tracks like squirrels."[27] During the Trans-Siberian's first year in operation, wrecks occurred at the rate of nearly three a day and took the lives of ninety-three crewmen and passengers.[28]

To lessen the chance of accidents, engineers drove their trains at a crawl. Between Krasnoiarsk and Irkutsk in central Siberia, they ran without timetables, usually taking more than four days to complete the 670-mile journey, and they moved even more slowly once they got farther east. "I know of only one slower railway in the world," one traveler wrote in frustration. "[On the line] from Jaffa to Jerusalem," he added, "I have seen the driver alight, without actually stopping his engine, to gather wild flowers!"[29] Even after the circum-Baikal link was finished and the Lake Baikal gap closed in 1905, one railroad expert calculated, the old Nikolaevskaia Railroad that had been built to con-

nect Moscow and St. Petersburg in the 1840s could still handle thirty times more traffic than the Trans-Siberian.[30]

In terms of resources, labor, lives, and treasure, the cost of the Trans-Siberian Railroad proved to be immense. To build it in a decade, more than seventy thousand men had moved seventy-seven million cubic feet of earth for gradings and had felled over a hundred thousand acres of forest. Even before the extension across Manchuria and the link around Lake Baikal had been built, more than twice the planners' original estimates had been spent, making the Trans-Siberian, as one expert estimated, "the most expensive peaceful undertaking in modern history up to that time."[31] Yet these huge expenditures had not produced the railroad Witte had envisioned. When Russia proudly announced the Trans-Siberian's opening in 1900, riverboats of the grandly named Amur Steam Navigation Company still formed a vital link in its operation. Until Russia completed the Trans-Siberian's Manchurian connection in 1903, steamboats remained as much a part of any journey across Siberia as locomotives and parlor cars.

30

Amur River Boats and Russia's Manchurian Connection

When Alexander III and his Council of Ministers had decided that the Trans-Siberian must be built as "*a continuous line* from the Urals to the Pacific Ocean,"[1] they had rejected the plans of Witte's predecessor, Vyshnegradskii, for building east-west rail portages to link Siberia's river transport routes. Yet Witte and his Committee on the Siberian Railroad had to reconsider that decision once they learned how difficult it would be to lay track through the rough lands along the Amur River to connect Sretensk with Khabarovsk.[2] The easiest and most obvious solution to these huge construction problems lay in rerouting the Trans-Siberian across territory held by the Chinese in Manchuria, but delicate diplomatic negotiations had to be undertaken before that could be done, and Witte knew that these could not be accomplished in time for the work to be finished in a decade. Until the negotiations for building a Manchurian connection could be concluded, he and his allies in Imperial Russia's Transport Ministry decided to use steamboats to carry passengers and freight along the fourteen-hundred-mile course of the Shilka and Amur rivers, which separated Sretensk from Khabarovsk.

Using rivers as highways had been common in northern Eurasia since prehistoric times. If placed end to end, Siberia's navigable rivers were long enough to encircle the globe with mileage to spare, and these, in olden days, had formed the pathways that had enabled men to move through the trackless taiga. Even after the great Siberian *trakt* was built

in the 1770s, river barges continued to carry much of Siberia's freight and passengers in the summer. Immigrants, prisoners, and that crowd of simple folk in high leather boots, greasy sheepskins, calico print dresses, and faded black trousers whose itchy feet kept them forever on the move had all made their way along Siberia's rivers in the days before the railroad.

Once the three thousand miles of track had been laid from Siberia's western frontier at Cheliabinsk to the eastern edge of the Transbaikal at Sretensk, these travelers shifted from the lower decks of riverboats to the crude boxcars of the Trans-Siberian, upon which the words "to carry twelve horses or forty-three people" had been stenciled. "If there were fifth-class cars, there were plenty of sixth- and seventh-class people—some in rags, and many in tags, but few in velvet gowns," the New England cleric Francis Clark wrote of the travelers he had seen when he had crossed Siberia in the summer of 1900. Clark was amazed at the dirtiness of his fellow passengers, especially the "half-naked children, filthy with grime that had accumulated since their birth, and alive with unmentionable parasites."[3] Siberia's migrant masses, he learned during the four days before he could escape from the fourth-class car in which he had been obliged to travel by an accident, lived at a level of existence far below any New England preacher's line of vision.

Seven hundred miles east of Lake Baikal, travelers en route to Vladivostok exchanged their train accommodations for riverboats at Sretensk, "the most lively center of the Transbaikal," according to the official *Guide to the Great Siberian Railway* that the Imperial Russian Transport Ministry published in 1900. A century of progress since its founding as a convict prison at the end of the eighteenth century had brought Sretensk two churches, two schools, a flour mill, a tannery, a factory that produced ninety tons of soap, and commerce to the value of nearly seven million rubles ($3,500,000) each year.[4] Yet wealth had not changed the town's appearance, and in 1900 it retained all the primitiveness of an overextended eastern Siberian village. "A few old barns stuck anyhow on a humpy wilderness of dust," the English journalist John Fraser wrote disdainfully in his description of what he had seen when he had approached Sretensk from the west. On closer acquaintance, Fraser dismissed it as a town of "squalid raggedness."[5] To others, Sretensk seemed a "melancholy-stricken hole" whose "wretched inns" offered nothing to induce travelers to break their journeys any longer than necessary.[6]

At Sretensk, passengers traveling east boarded the creaking vessels and flat-bottomed rafts of the Amur Steam Navigation Company, which offered cabins to its first- and second-class passengers and posted notices

that "third class [passengers] are placed on the decks of steamers and barges under awnings."[7] This "tatterdemalion throng [of third-class passengers] . . . carrying bedding, bundles of clothing, chunks of bread, a jangling kettle, and often a big flapping-tailed dried fish which would slap the face of the next person," Fraser wrote, fought their way onto the steamers' lower decks after the first- and second-class passengers had been boarded and the cargo stowed below.[8] That same year, "uncounted tow-headed babies tucked into every nook and cranny" on the crowded deck caught the eye of the Reverend Clark. "Every available foot of deck room," he reported in amazement, "had its two human feet to occupy it."[9]

Once under way, steamboat passengers traveling between Sretensk and Khabarovsk found themselves in unusual and unforeseen company, no matter what class of ticket they held. "I've an idea some fastidious Britishers would think this rather disgusting," Fraser remarked about the snorting and slurping of the passengers with whom he dined in the first-class saloon. "The most distinguished man at table," he explained, "was the colonel of a Tartar regiment . . . [who] ate with his fingers and salivated after the manner of a Mexican cow-puncher." To add insult to injury, the cabin that Fraser shared with a Siberian school inspector proved to be even worse than the ship's dining room. "I've known cleaner stables than our cabin," he complained. "[At] night I felt things dropping on my neck and crawling on my cheek, and making excursions along my arm."[10] Obliged to make the Amur journey at a time when a drought had left the river too shallow for steamboats, another traveler found himself in a flat-bottomed barge towed by a small tug that drew no more than a couple of feet of water. "The first class accommodation consisted of a stuffy cabin in which I could barely stand upright," he reported. "The food," he added in disgust, "was beyond anything I have ever experienced or even pictured."[11]

To add to everyone's discomfort, Amur steamboats often ran aground on the sandbars that filled the river's shallow channels. A few hours of pulling and prodding with poles and levers usually managed to heave the vessel clear, sometimes only to have it get stuck again just a few miles farther on. Mississippi River captains, those champion tellers of the tall tales that Mark Twain recorded with such relish, had been known to claim that they could cross a sandbar so long as "the sweat of an ice-pitcher" remained between the keel and the river's bottom.[12] Judging by the frequency with which they ran their boats aground, the captains of the Amur Steam Navigation Company tried to outdo their Mississippi counterparts at every bend. "Going down the Amur when

the water is low," one traveler concluded wryly after he had made the journey in a small private steamer, "is as exciting as skating over thin ice."[13]

Those who did not travel during the scant 140 days when the Shilka and Amur rivers were open for navigation had to follow the river's frozen surface on sledges. Stopping only at post stations to change horses that had been driven across the snow and ice at breakneck speed, travelers needed at least twenty days to cover the distance between the two railheads. "The rule of the Russian road," the adventurous American engineer Lindon Bates explained, "[is that] one always starts at top speed, however bad the way . . . [and] finishes at a gallop, however jaded the horses." Bates warned that such travel was not for the faint of heart. "Clothes and the nervous system," he wrote, "are at a discount in Siberian sledging." Day and night the weather maintained an unrelenting assault upon the human organism. "The cold is intense," Bates remembered. "Eyeglasses are unwearable, for the rising vapor from one's breath is caught and frozen on them in an opaque film. Fingers exposed but a moment become numb and useless, and uncovering the hand is an agony."[14]

Few travelers had Bates's fortitude or shared the enthusiasm of Lionel Gowing, the doughty Englishman from Hampstead who once insisted that "sledging in the moonlight nights had a charm which the brightest starlight could never give." Jolting against the chunks of frozen soup, meat, and milk that filled his sleigh, Gowing claimed to have found the forty-degree-below-zero temperatures in which he had crossed Siberia at the end of the 1880s invigorating. The "stern grandeur of the wintry landscape" and "the beautiful scenery [and] the clear bright weather" had enthralled Gowing but charmed very few others.[15] Most Trans-Siberian Railroad passengers therefore made the journey when the river between Sretensk and Khabarovsk was open for navigation.

Of the forty-two villages and hamlets that had arisen between Sretensk and Khabarovsk during the nineteenth century, the only one of any consequence was Blagoveshchensk, whose most striking landmark was a gigantic triumphal wooden arch built to commemorate the tsarevich Nicholas's visit in 1891. Founded in 1856, Blagoveshchensk was a Siberian boomtown whose population had grown from three thousand in 1880 to more than thirty thousand by 1900, mainly as a result of the discovery of gold in the nearby Zeia River. Blagoveshchensk had a gold town's economy of high prices and conspicuous waste that juxtaposed the elegant upon the tawdry. All across the town, impressive public buildings built of brick rose above one-story log cabins, yet Blagoveshchensk lacked the pulsating vibrance of its North American counterparts. "It is a huge, straggling, prosperous village," the Reverend Clark wrote. "Of all the inland towns of Russia in Asia," he added, "this is the one which has had the greatest opportunities."[16] In 1900, no one knew for certain how these opportunities would be used or what direction the development of Blagoveshchensk would take.

A town whose name in Russian means "the Annunciation" or, more freely translated, "glad tidings," Blagoveshchensk soon became known to Europeans for the "black crime" that occurred after some sporadic rebel rifle fire from the Chinese side of the river during the Boxer Rebellion of 1900 drove a nervous cossack garrison to murder all of its Chinese workers. Fearful that another massacre such as was rumored to have taken place at Peking was about to begin, the cossacks herded several thousand Chinese into the river at lance point and drowned them all. Western observers were appalled at the Russian government's reluctance to punish the killers. "The drowning of these poor defenseless Chinamen," Fraser wrote with the self-righteous moral outrage that European travelers found so easy to muster in foreign lands, "has fixed a brand on Blagoveshchensk never to be forgotten."[17]

From Blagoveshchensk, steamboats from Sretensk had to continue east for another six hundred miles before they reached Khabarovsk, where about a quarter of the inhabitants were Koreans and Chinese and men outnumbered women by more than three to one. The town's first bank had only opened in 1899, and the local wine, made by an enterprising Russian merchant by the name of Khlebnikov, was generally conceded to be very bad and equally expensive. "By reason of its uninhabited valleys, very wide, unpaved, unmade streets, and extensive barracks and government buildings," one traveler wrote as he passed through Khabarovsk, "the town seems desolate and stagnant."[18] Khabarovsk attracted comment from few other visitors, most of whom concentrated upon putting it behind them as quickly as possible. "The conditions of life in Khabarovsk," the official *Guide to the Great Siberian Railway* stated blandly, "are not attractive on account of the absence of comfortable dwellings and the expensiveness of the most necessary articles."[19]

So long as Amur River steamboats continued to move passengers between Sretensk and Khabarovsk, the Trans-Siberian's schedule continued to be little more than a fondly expressed hope. "It is impossible to calculate exactly, or even within a fortnight, the time that may be taken [for the journey]," the Reverend Francis Clark wrote after spending thirty-eight days en route by train and riverboat from Vladivostok

to Moscow. "I can well imagine," he concluded after a thirty-six-hour delay caused when a locomotive's fireman dumped coals onto a wooden bridge and set it afire, "that the trip might take three or four months instead of as many weeks."[20]

If the Trans-Siberian were to tie East and West together, the uncertainties of which Clark had complained had to be removed. Witte had therefore opened negotiations with the Chinese for the rights to build a thousand-mile railroad across Manchuria that would cut almost 350 miles off the Amur River route and pass through considerably less rugged terrain. His success in clearing the way for the Trans-Siberian's Manchurian connection offered the Russians a chance to dominate Manchuria, gain a foothold in Korea, establish an ice-free far eastern port on the Yellow Sea, and replace the Amur River steamboat route with a railroad.

Witte chose the coronation of Nicholas II and Empress Aleksandra in the spring of 1896, when some of the world's most prominent statesmen and the grandest of Russia's courtiers had gathered in Moscow, to plead Russia's case with Li Hung Chang, first chancellor of the Chinese Empire and representative of China's empress dowager at the Court of Imperial Russia.[21] Before the end of May, Li had agreed to Witte's demands in return for a Russian treaty of alliance against Japan, and the railroad's justification thus became the need to move Russian troops quickly to the far east if the Japanese should attack China. To conceal Russian ownership of the railway, Li insisted that the eighty-year concession China would grant to the land on which the railroad would be built must be given to the Russo-Chinese Bank, which was controlled by the Imperial Russian Ministry of Finance but had a Chinese diplomat as its chairman.[22] In return, Witte paid Li a bribe of three million rubles in gold through the Russo-Chinese Bank and wrote it off as part of the railroad's construction costs.[23]

Once Li's agreement had been converted into diplomatic documents, the Russians set to work on the Chinese Eastern Railway only to confront a host of unexpected problems. Bubonic plague swept Manchuria in the summer of 1899, and scientists, physicians, and public health experts had to be brought in to prevent the epidemic from raging out of control. No sooner had the plague been dealt with than the Boxer Rebellion broke out in China in the spring of 1900, and the Russians' hired coolies joined the rebels in ravaging more than five hundred miles of newly laid track. Another epidemic of bubonic plague struck during the summer of 1901, followed by Asiatic cholera, which broke out in 1902 as the Russians struggled to cut a two-mile tunnel through the Greater

Khingan Mountains, the last natural obstacle between Manchuria and the Russian frontier.[24] By the time the Russians opened the Chinese Eastern Railway to regular traffic in February 1903, it had cost them eleven million rubles more than they had spent to build all the rest of the railroad put together.[25] Yet Nicholas II and the Russian statesmen who hoped to win control of Manchuria thought the money well spent. A direct rail line now ran from Moscow to the western bank of Lake Baikal and from Lake Baikal's eastern shore to Vladivostok and Port Arthur, the newly acquired Russian naval base on the Yellow Sea. Only the link around the great lake's southern tip remained unfinished. Once that was done, Witte's vision of a railroad from the Baltic to the Pacific would be fulfilled.

31

Lake Baikal

Almost twenty-five million years before the first humans walked the earth, a series of seismic events created Lake Baikal in the middle of Siberia. Its name, in the language of the ancient Kurykans who lived there in the sixth century, means "much water," and those who have taken their place have called it, similarly, "natural sea" (*baigal-dalai* to the Buriats) and "rich lake" (*bai kel* in the language of the Iakuts).[1] Regarded by all who have lived around it as a "holy sea," the islands of which have long been venerated as places of worship, Lake Baikal fills an abyss as long as England, fifty miles wide, and more than a mile deep. The deepest body of fresh water anywhere on earth, Baikal's surface area of 12,162 square miles is larger than Belgium, and its 5,513 cubic miles of water comprise a fifth of the earth's freshwater supply. Something over three hundred rivers and mountain streams pour into it from the surrounding mountains, but only one—the mighty Angara River, which is more than a third of a mile wide where it joins the lake—exits from it. Although more than three and a half million cubic feet of water pour from Lake Baikal into the Angara each minute, Russian scientists estimate that it would take more than five hundred years to drain the lake if all of the water flowing into it could be shut off. According to another estimate, it would take most of the annual flow from all the world's major rivers to refill Lake Baikal, if that could be accomplished.[2]

The Russians managed to cross Siberia during the first third of the

seventeenth century without seeing Lake Baikal or even guessing its existence. Their route carried them farther north, closer to the line that divides the taiga from the tundra, and it was only after they had reached the Pacific and begun to explore the southern parts of the lands they had discovered that they reached this "holy sea" of the Buriats and Iakuts. The first Russian to drink Baikal's waters was Kurbat Ivanov, a cossack captain who led seventy-five men to it in 1643 to collect fur tribute from the Buriats.[3] Soon after that, explorations beyond Lake Baikal uncovered irrigated valleys that once had been sown in grain. This discovery had been one factor in making Poiarkov and Khabarov so confident of finding cereals in the Daurian lands beyond the Amur River.[4]

A tangle of historical and geological contradictions, Lake Baikal continues to defy the best efforts of scientists and engineers to unravel its deeper mysteries. How did the types of flora one would expect to find in the high Swiss Alps come into being a mere fifteen hundred feet above sea level in the center of Asia? And how could such a lake, so fresh, cold, and stormy, nurture emerald green, chlorophyll-laden tropical sponges less than seven hundred miles below the Arctic Circle? Other lakes have rarely lasted longer than a million years before filling with sediment, but Baikal is more than twenty-five times that old. Although the layer of sediment on its bottom is nearly five miles thick (deep enough to bury Mount Everest with room to spare), the lake seems to be growing wider but not shallower.[5] As the world's oldest lake, Baikal continues to display aquatic plants and animals that have evolved over the past twenty-five million years of the earth's history. At every level, it is a zoological and botanical wonderland that continues to confound and fascinate scientists all across the world.

Lake Baikal contains two and a half thousand species of animals and plants, more than half of which cannot be found anywhere else on earth. Among them is the *golomianka,* or oil fish, so named because half of its body weight is oil. Iridescent, semitransparent, and prized by Baikal's natives for its medicinal qualities, the *golomianka* lives singly, not in schools, and is one of the few fish that gives birth to live offspring. Like fifteen hundred of Baikal's other creatures, it is unique to the lake's waters. So is the *epischura,* a tiny, whiskered crustacean no more than a sixteenth of an inch long. As many as three million of these tiny scavengers have been counted on a single square yard of Baikal's surface, and it is to their voracious appetite for algae and bacteria that the lake owes its extraordinary clarity. Scientists say that most of Baikal's water is so pure, in fact, that water collected in a laboratory beaker from its center becomes contaminated by the glass. Thanks to the *epischura*'s ability to

remove its impurities, Lake Baikal is populated all the way to the bottom, unlike, for example, Africa's huge Lake Tanganyika, which sustains life for only the first five or six hundred feet below its surface.[6]

Lake Baikal's brilliant blue waters can turn violent in an instant, with waves rising to heights of six or seven feet.[7] "It is only on Baikal in the autumn that a man learns to pray from his heart," John Fraser wrote after living through one of its frequent storms. His crossing had begun "like a holiday cruise" on "a delicious afternoon" in September, only to turn sour when "billows of clouds tumbling from the [surrounding] mountains . . . filled the rigging of the ship with Valkyrie cries."[8] For several hours, the winds tore at the *Baikal* as it struggled to ferry Fraser and his fellow passengers across the lake. Then the storm, another of those natural phenomena that make Lake Baikal so complex, subsided as quickly as it had begun.

In 1901, the task of building a railroad around the southern tip of this treacherous and restless lake fell to Aleksandr Pertsov, once described as "a dynamic architect and civil engineer who preferred hard jobs to easy ones."[9] It may have been an exaggeration to claim, as one high official did in those days, that the circum-Baikal line "surpassed in difficulty and amount of work all those [railroads] constructed in the Russian Empire up to the present,"[10] but the undertaking certainly tested Pertsov's abilities as a railroad builder to the utmost. Embankments requiring an average of a hundred thousand cubic yards of stone and dirt per mile, a roadway that had to be blasted out of precipitous cliffs, thirty-three tunnels totaling more than five miles in length, and more than two hundred bridges and trestles all had to be built within the space of 162 miles before the link around Lake Baikal's southern tip could be finished.[11]

After three years of work, Pertsov opened this final segment of the Trans-Siberian Railroad to traffic in the fall of 1904, just in time to transport the huge quantities of men and supplies that the Russians needed to mount their campaign against the Japanese in Manchuria in February 1905. Then, for the first time in history, it became possible to travel by train from the Baltic to the Pacific. Able to move men and goods from European Russia to the Far East in less than three weeks, the Trans-Siberian Railroad had become, in the words of a British commentator, "a political weapon, the force and significance of which still are difficult to determine." Now the Russians had the means to build an empire that promised to be sufficient unto itself. "It makes Russia a totally self-contained state, no longer dependent upon the Dardanelles or the Straits [for shipping goods, armaments, men, and supplies from

one end of the empire to the other]," the same writer explained. "It will give her an economic independence with which she can attain a degree of power such as no state has yet dreamed of."[12]

"After the discovery of America and the construction of the Suez Canal," one of France's future foreign ministers stated with admiration, "history has never recorded an undertaking with greater significance, or one with such profound direct and indirect consequences, than the construction of the Trans-Siberian Railway."[13] Like the United States of America on the North American continent, Russia now strived to fulfill what she regarded as her manifest destiny to rule Eurasia from the Baltic to the Pacific. "Siberia is for Russia," one Russian journalist explained. "Siberia is . . . Russia herself."[14] It seemed that a new era was about to begin and that the vision expressed more than fifteen years earlier by the editor of the Transport Ministry's official journal was about to be realized. "The ancient routes of the Huns and Mongols to Europe will open themselves anew," he had written then of the plans for a Trans-Siberian Railroad. "Along these paths," he went on, "steam engines will whistle and dart, bringing life and culture to the land of bears, sable, and gold!"[15] But war, it turned out, was destined to come before either culture or business. Even as the circum-Baikal link was being finished, Russia's armies were being tested against those of Japan in the Far East. To the amazement of those who had feared that the Trans-Siberian would make the forces of Russia dominant in Asia, the armies of the tsar were found wanting.

32

"A Small Victorious War"

Before the days of the Trans-Siberian Railroad, Russia's tsars had defended Siberia's far eastern lands with a few scattered garrisons and cossack regiments. For much of the eighteenth and nineteenth centuries, China's attention had been elsewhere, and Japan, destined to become the major force in Asia in the twentieth century, had remained turned inward upon herself until the 1860s. The only threat to Russia's interests in Asia had seemed to be the British, who from their firmly held positions in India were reaching toward Afghanistan and aspiring to play an important part in the affairs of China. Yet, even from these new footholds, the British were in no position to threaten Siberia directly. Against natives untrained in modern warfare and too few in number to mount any large-scale campaign against them, the Russians continued to feel confident that their hold on Siberia remained secure.

Limited defenses in the Far East served the tsars of Russia well enough until Chinese settlers began to pour into northern Manchuria in the 1880s.[1] Then, they began to worry about how outnumbered their frontier outposts would be if the Chinese spread across the shallow Amur into Siberia. "In Manchuria there are more than ten million [Chinese] while there are fewer than a hundred thousand [Russians] in all the Siberian coastal lands," a colonel from the General Staff reported to a meeting of the Imperial Russian Geographical Society in 1891.[2] Although exaggerated to command his listeners' attention, the colonel's

speech stirred age-old fears that the Asian menace, which once had brought the hordes of Batu Khan to the Russians' lands, was about to rise again. Then, as the armies of China and Japan began to modernize, many in Russia began to fear that a new Mongol horde might be forming in the east to destroy the civilization of the West.[3] Russia's poets began to speak of hearing the "iron tread" of new Hun armies echoing in the east. Their advance, the Symbolist Valerii Briusov warned, would drive "thinkers and poets, keepers of mysteries and the faith" into hiding "in catacombs, in deserts, and in caves." Everything else might "perish without a trace."[4]

Worries about holding back the "yellow tide" of Asia had played a part in the decision to build the Trans-Siberian Railroad, although Alexander III's caution and Witte's warnings about the dangers of imperialist ventures had kept the most ardent of Russia's expansionists from reaching beyond Siberia's frontiers. "Russia's mission in the East must be protective and educational," Witte had warned when more reckless men urged the tsar to seize lands coveted by the Japanese in Korea and Manchuria. "It is Russia's natural task," he explained, "to guard her neighboring eastern lands which lie in her sphere of influence against the excessive political and colonial claims of other powers."[5] Witte might protest Britain's incursions into China and worry about Japan's growing foothold on the Asian mainland, but he was not prepared to support diplomatic pressures with military force. First, Russia's economy had to be put into order, its budget balanced, and its grip upon Siberia made more firm. In the early 1890s, Witte was not prepared to risk his efforts to achieve those vital goals by launching his nation upon ill-advised undertakings in Siberia's southern borderlands.

When he ascended Russia's throne at the end of 1894, Nicholas II shared neither his father's caution about Asia nor Witte's good sense about avoiding foreign entanglements that might further tax the empire's already strained budget. Although Witte had in earlier times helped to shape Nicholas's views about the Far East, his timid student had grown too quickly into an incautious emperor who supported a more aggressive policy there than either his father or his mentor thought wise. Being thus set at odds with his emperor forced Witte to fight for his political survival in a government in which, as he once wrote, "intrigue plays an unseemly role."[6] At the same time, the emperor's lack of caution undermined Witte's efforts to restrain those reckless courtiers who hoped to reap large profits from the lands beyond Siberia's frontiers.

Yet Witte's commitment to building the Trans-Siberian Railroad eventually drew him deeply into the politics of the Far East nonetheless.

In negotiating the concessions that made it possible for Russia to build the Chinese Eastern Railway across Manchuria, Witte at one stroke weakened China, strengthened Russia's position, and threatened the designs that the Japanese had on Korea and parts of Manchuria. By moving into Manchuria, Russia embarked upon a collision course with Japan that made war between them all but inevitable unless one or the other retreated from Siberia's far east.

Unlike the tradition-bound mandarins and corrupt warlords who served themselves first and China last, the rulers and statesmen of Japan had built a modern army and an industrial base to support it during the last third of the nineteenth century. By 1900, they could mobilize over a million men, and they showed no hesitation about using force to defend their newly announced claims on the Asian mainland.[7] Japan had already gone to war with China over these interests in 1894, when it had advanced into Korea and the Liaotung peninsula.[8] When Nicholas II allowed speculators at his court to extend Russian influence into the Korean territories that the Japanese had just claimed, the tension between the two nations mounted.[9] "He is in an excited state," Witte wrote of his emperor then. "Ideas of some kind or another are seething inside him."[10] Anxious to make common cause with a circle of adventurers who urged him to view Russia's destiny in the Far East in bolder terms, Nicholas removed Witte from office in 1903.[11]

Sensing that Russia had crossed a Rubicon in embarking upon this new course, Witte left the tsar's government, warning as he did so that "an armed clash with Japan would be a great disaster,"[12] because the "elements, the distances, the oceans and the seas all were against Russia."[13] The Far East was too far away and Russia's ability to supply a modern army there still too limited to be worth the risk. "I do not desire war between Russia and Japan," Nicholas replied, "and I shall not permit it."[14] Japan, he insisted, must cede her sphere of influence in northern Korea to Russia, and he continued to speak of Russia's generous forbearance toward the people whom he habitually described as "little short-tailed monkeys."[15] Russia's emperor thus persisted in believing that the course of Far Eastern affairs could be controlled from St. Petersburg and that war would come only if—and when—the Russians desired it.

Despite the warnings of Witte and Minister of War General Aleksei Kuropatkin, Nicholas II and his advisers never seemed to take seriously the possibility that the Japanese might attack Russia or that a war against Japan might pose a serious test of their empire's strength. "The tsar remained supremely confident," Witte later wrote, that the Japanese

"would be smashed to smithereens" in any war between the two nations.[16] In fact, now that the Trans-Siberian Railroad had been completed except for the circum-Baikal link, some of Nicholas's advisers were beginning to think that a war in Asia could help to calm Russia's domestic turmoil. "In order to hold back the tide of revolution," one high official wrote, "we need a small, victorious war."[17] "War is war, and peace is peace," Nicholas told the uneasy Kuropatkin soon afterward. "But this business of not knowing either way is agonizing."[18]

Confident that Russia's might far outweighed Japan's, Nicholas and his advisers showed no particular concern when the Japanese ambassador left St. Petersburg with his entire staff near the end of January 1904. The Russians had not yet planned how to finance a war in the Far East, nor had they begun to move the men and matériel that such a war would require into position. Nicholas seems simply to have assumed that the Japanese would wait for Russia to take the initiative in resolving the issues that divided them. Now ready to combine their samurai tradition with modern weapons to meet any challenge in the Far East, the Japanese had no intention of doing so.

When Nicholas and the empress Aleksandra attended a performance of the Imperial Opera on St. Petersburg's Mariinskaia Square on the evening of January 26, they did not know that Japan's fleet had steamed into Russia's newly built naval bastion at Port Arthur and attacked the battleships of the Far Eastern Fleet under the cover of darkness just eight hours before. Because Russia's Far Eastern High Command failed even to send proper word of the attack to the capital, the first news of it reached St. Petersburg from a commercial agent in the Far East, whose telegram his counterpart in Russia's capital took to the now retired Witte, who relayed it to Russia's incredulous war minister.[19] For the first time in modern history, Russians and Asians armed with modern weapons faced each other to test the myth of white supremacy. With its links across Manchuria to Vladivostok and Port Arthur now complete, the Trans-Siberian Railroad had made that confrontation possible for the Russians and unavoidable for the Japanese.

The Japanese attack against carelessly defended battleships and unprepared land fortifications marked the beginning of an eleven-month debacle at Port Arthur that ended on December 20, 1904, when, after reporting that he could hold the fortress for "only a few days more,"[20] the Russian commander surrendered more than thirteen thousand able-bodied men, hundreds of tons of supplies, over six hundred field guns, 200,000 artillery shells, and 2.5 million rounds of machine-gun and rifle ammunition to the dumbfounded Japanese.[21] Not only had the Russians

lost a major fortress to a foe they had disdained as inferior but they had done it in full view of a world that had become linked by transoceanic telegraph, faster ships, and railroads as never before. For the first time, New York, London, Paris, and Berlin knew what had happened in the Far East only yesterday. And, as the world became smaller, the Russians' ignominious defeat at Port Arthur loomed larger in newspaper headlines. For the first time in modern history, Asians had defeated Europeans. No longer small and far from victorious, the Russo-Japanese War was beginning to spawn revolutionary discontent among the workers of St. Petersburg and Moscow at the same time that a shortage of overcoats and winter boots (sent from European Russia in the fall of 1904 but destined not to arrive in the Far East before the war ended almost a year later) undermined the morale of the troops at the front.

After the fall of Port Arthur, the Russians centered their hopes upon the large army that General Kuropatkin had withdrawn to Manchuria's capital of Mukden after an indecisive battle at Liaoyang in August and September. Now both sides needed a victory, the Russians to avenge their defeats at Port Arthur and in Korea, the Japanese to finish a war that was beginning to strain their reserves of men, money, and matériel to the breaking point.[22] "It is essential," Japan's commander told his generals at the beginning of February 1905, "that the enemy be dealt a heavy blow."[23] That was to be tried later that month at Mukden, where more than half a million men fought along a hundred-mile front for twenty days in what became history's first modern battle.

At Mukden, commanders had to rely for the first time upon telephone and telegraph to shape their vision of a battlefield that stretched far beyond the horizon, and victory became more than ever the achievement of corps and division commanders who had the foresight to turn unexpected shifts in the tide of battle to their advantage. In a battle in which reconnaissance and mobility became the key to victory, Kuropatkin moved his forces ponderously, predictably, and with appalling lack of imagination. Although he had the resources to develop reconnaissance far superior to that of the Japanese, the Russian commander had no idea what forces faced him or how they were positioned, and he made assumptions about his enemy's strategy that even the scant available evidence did not support. Japan's energetic generals therefore drove the Russians back at every point, although both sides were bled white in the process. By the time Japan's Marshal Iwao Oyama entered Mukden on February 25, more than 160,000 men had been killed, wounded, or listed as missing in action.[24]

Oyama had not the resources to press the fighting, but the war could

not end at Mukden, for the Russians still had one more card to play. In October 1904, the Russian Admiralty had ordered the Baltic Fleet to the Far East, and at the moment of Kuropatkin's defeat, it was steaming around the tip of Africa to attack the Japanese in their home waters. The emperor, Witte remembered, expected that this badly trained force "would reverse the entire course of the war,"[25] a view in which he was encouraged by several soothsayers who had predicted in the fall of 1904 that peace would be concluded in Tokyo and had insisted that "only kikes and intellectuals could think otherwise."[26] With ships manned by inexperienced crews and defended by untrained gunners, this desperate venture came to a catastrophic end in the Strait of Tsushima in the middle of May 1905. In this first of the twentieth century's great naval battles, it cost the Japanese three torpedo boats and 116 men to send twenty of Russia's warships and five thousand of their crew members to the bottom of the sea in a single day.[27]

For the better part of eighteen months, the Japanese had defeated the best forces the Russians had in the Far East, but they had done so at a cost that threatened to turn the war against them if the fighting continued. "We now must be prudent," Japan's Field Marshal Marquis Yamagata Aritomo insisted. "The enemy still has powerful forces in its home country, but we have already exhausted ours."[28] The Japanese therefore accepted President Theodore Roosevelt's offer to mediate the conflict, although Nicholas delayed doing so in the hope that time and the weight of the new divisions that could be sent by way of the now completed circum-Baikal link might turn the war in Russia's favor. If Russia's armies could maintain their will to fight, and if Russia's factories could provide them with the weapons they needed, defeat might yet be averted.

Russia's tsar had neither the public support nor the domestic peace needed to follow such a course. With discontent among the workers in their largest cities about to explode into revolution, Russia's statesmen urged their emperor to end the war rather than risk new battles at home and in the Far East at the same time. Yet two more months had to pass before the Russians and Japanese had their first meeting at Portsmouth, New Hampshire. "Did you ever know anything more pitiable than the condition of Russian despotism?" President Roosevelt asked his ailing secretary of state at one point. "The Tsar is a preposterous little creature," he concluded. "He has been unable to make war, and he now is unable to make peace!"[29]

Thanks in large measure to Witte, who, although opposed to the war from the beginning, now negotiated a better peace than his emperor had

any reason to expect, the Russo-Japanese War ended twenty days after the Russians and Japanese arrived at Portsmouth. Although Russia retained all of Siberia and lost only the Liaotung peninsula, the South Manchurian Railway, and the southern half of Sakhalin Island,[30] these losses were enough to convince her statesmen that the time had come to turn inward to develop Siberia rather than reach beyond its frontiers for new lands. Russia had too many problems at home. Her peasants were too poor, the yields of their fields too low, their villages too crowded, their taxes too high. A way had to be found to give more Russians better opportunities to rise out of the poverty that had ruled their villages for so long, and Siberia again seemed to offer the answer. With hundreds of thousands of peasants in European Russia suffering from land hunger, the tsar's government began to encourage massive migrations to the rich farmlands of Siberia's southwest. As had already happened in North America, South Africa, and Australia, Siberia became a land of promise for millions of immigrants in search of new and better lives.

33

The Immigrants

Fifty years after Ermak's "conquest," nine out of every ten of the 196,000 souls living in Siberia were natives whose ancestors had roamed the lands east of the Urals for millennia. By the time Russia and Japan made peace in 1905, Siberia's population had grown to 9.4 million, nine out of ten of whom were Russians. In the course of a little more than three centuries, the Russians' numbers had multiplied by a factor of 365, while those of the native Siberians had increased by less than six. Immigration, which became especially massive in the 1890s, accounted for this overwhelming increase in Siberia's Russians. Just between 1897 and 1911, three and a half million men, women, and children moved to Siberia from European Russia.[1]

As one high official wrote, the Russian colonization of Siberia had been "the free migration of unfree peasants" until after the Emancipation Acts of 1861 had taken effect in European Russia.[2] Once across the Urals, enterprising peasants in olden times had been able to live free of the many disabilities they had suffered in their former homes, where masters and government officials claimed the fruits of their labors and village communes reduced them all to the lowest common denominator. Siberia had been the place in which a peasant could leave behind the bonds of serfdom and begin life anew in a land that was as fresh as the immigrant's life itself. "Nowhere in the United States," England's John Fraser wrote as he compared Siberia's southwest with the Great Plains

Chapter 27. Lenin in Exile

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2. Lenin to M. I. Ul'ianova, March 10, 1897, in A. G. Ivan'kov, *Lenin v sibirskoi ssylke, 1897–1900* (Moscow, 1962), p. 30.
3. Ivan'kov, *Lenin v sibirskoi ssylke*, p. 68.
4. Quoted in *ibid.*, p. 46; see also pp. 38–47.
5. Lenin to M. A. Ul'ianova and A. I. Ul'ianova-Elizarova, April 17, 1897, in Lenin, *Sochineniia*, 4th ed. (Moscow, 1957), XXXVII, p. 37.
6. Lenin to M. A. and M. I. Ul'ianova, May 18, 1897, in Lenin, *Sochineniia*, XXXVII, p. 42; Lenin to M. A. Ul'ianova, September 30, 1897, in *ibid.*, p. 62; Lenin to M. A. Ul'ianova, October 12, 1897, in *ibid.*, p. 63.
7. Lenin to M. A. and M. I. Ul'ianova, May 18, 1897, in Lenin, *Sochineniia*, XXXVII, pp. 43, 42; Lenin to M. A. Ul'ianova and A. I. Ul'ianova-Elizarova, in *ibid.*, p. 51; Lenin to M. A. Ul'ianova, August 17, 1897, in *ibid.*, p. 58; Lenin to M. A. Ul'ianova, February 7, 1898, in *ibid.*, p. 83.
8. Lenin to M. A. Ul'ianova, February 7, 1898, in Lenin, *Sochineniia*, XXXVII, p. 83.
9. Quoted in Louis Fischer, *The Life of Lenin* (New York, 1964), p. 32.
10. Lenin to M. A. and M. I. Ul'ianova, May 18, 1897, in Lenin, *Sochineniia*, XXXVII, p. 41. This description of Shushenskoe is taken from Lenin's letters to his mother, sisters, and brother-in-law, and from Bertram D. Wolfe, *Three Who Made a Revolution: A Biographical History* (New York, 1948), pp. 134–137; Fischer, *Life of Lenin*, pp. 31–33; Ivan'kov, *Lenin v sibirskoi ssylke*, pp. 111–126.
11. Lenin to M. A. Ul'ianova, May 7, 1897, in Lenin, *Sochineniia*, XXXVII, p. 40.
12. Lenin to M. A. Ul'ianova, February 7, 1898, in Lenin, *Sochineniia*, XXXVII, pp. 82–85; Lenin to M. A. Ul'ianova and M. I. Ul'ianova, February 28, 1898, in *ibid.*, pp. 91–93.
13. Lenin to M. A. Ul'ianova, May 10, 1898, in Lenin, *Sochineniia*, XXXVII, pp. 102–103.
14. Nadezhda K. Krupskaia, *Memories of Lenin*, translated by Eric Verney (New York, n.d.), pp. 31–32.
15. *Ibid.*, p. 32, 35.
16. Quoted in *ibid.*, p. 35.
17. *Ibid.*, p. 30.
18. Quoted in Isaac Deutscher, *The Prophet Armed: Trotskii, 1879–1921* (New York and London, 1963), p. 43.
19. Quoted in Wolfe, *Three Who Made a Revolution*, pp. 622–623.

Chapter 28. An Iron Road Across Asia

1. Quoted in Steven Marks, *Road to Power: The Trans-Siberian Railroad and the Colonization of Asian Russia, 1850–1917* (Ithaca, N.Y., 1991), p. 126.
2. *Ibid.*, pp. 133, 179–185; V. F. Borzunov, *Proletariat Sibiri i Dal'nego Vostoka nakanune pervoi russkoi revoliutsii (po materialam stroitel'stva transsibirskoi magistrali, 1891–1894gg.)* (Moscow, 1965), pp. 18, 26–42, 78–79; S. V. Sabler and I. V. Sosnovskii, *Sibirskaia zheleznaia doroga v eia proshlom i nastoiashchem. Istoricheskii ocherk*, edited by A. N. Kulomzin (St. Petersburg, 1903), p. 157; Tupper, *To the Great Ocean*, pp. 103–106.
3. Quoted in Marks, *Road to Power*, p. 130.
4. *Ibid.*, p. 105.
5. A. A. Polovtsov, *Dnevnik gosudarstvennogo sekretaria A. A. Polovtsova*, edited by P. A. Zaionchkovskii (Moscow, 1966), II, p. 343.
6. Quoted in Sabler and Sosnovskii, *Sibirskaia zheleznaia doroga*, p. 69.

7. Quoted in *ibid.*, p. 76.
8. Quoted in S. G. Svatikov, *Rossiia i Sibir' (k istorii sibirskogo oblastnichestva v XIXv.)* (Prague, 1930), p. 89.
9. Marks, *Road to Power*, pp. 49–50.
10. N. M. Iadrintsev, *Sibir' kak koloniia*, pp. 51, 59, 63; see also pp. 50–85.
11. Quoted in Marks, *Road to Power*, pp. 87–88.
12. Svatikov, *Rossiia i Sibir'*, p. 85.
13. Marks, *Road to Power*, p. 90.
14. *Ibid.*
15. Quoted in *ibid.*, p. 91.
16. Quoted in *ibid.*, p. 90.
17. Quoted in Theodore H. von Laue, *Sergei Witte and the Industrialization of Russia* (New York and London, 1963), p. 25.
18. Sabler and Sosnovskii, *Sibirskaia zheleznaia doroga*, p. 91.
19. Quoted in Marks, *Road to Power*, pp. 104–105.
20. Quoted in *ibid.*, p. 92.
21. Quoted in *ibid.*
22. A. I. Dmitriev-Mamonov and A. F. Zdziarskii, eds., *Guide to the Great Siberian Railway*, translated by L. Kukol-Yasnopolsky, revised by John Marshall (St. Petersburg, 1900), p. 76.
23. Quoted in Tupper, *To the Great Ocean*, p. 4.
24. Ukhtomskii, *Puteshestvie Gosudaria Imperatora Nikolaia II*, VI, *passim.*
25. K. P. Pobedonostsev, *Pis'ma Pobedonostseva k Aleksandru III* (Moscow, 1926), II, pp. 99–100.
26. Quoted in Harrison Salisbury, *Black Night, White Snow: Russia's Revolutions, 1905–1917* (New York, 1978), p. 176.
27. Sabler and Sosnovskii, *Sibirskaia zheleznaia doroga*, p. 129; S. I. Vitte, *Vospominaniia* (Moscow, 1960), I, pp. 433–435.
28. Marks, *Road to Power*, pp. 122–125.
29. Quoted in Princess Catherine Radziwill, *Memories of Forty Years* (London, 1914), p. 244.
30. Quoted in Marks, *Road to Power*, p. 130.
31. Quoted in *ibid.*
32. *Ibid.*, pp. 149–153; Liashchenko, *History of the National Economy of Russia, to the 1917 Revolution*, translated by L. M. Herman (New York, 1949), pp. 560–561; Peter Gatrell, *The Tsarist Economy, 1850–1917* (New York, 1986), pp. 153–155.

Chapter 29. Building the World's Longest Railroad

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2. Quoted in Lindon Bates, *The Russian Road to China*, pp. 54–55.
3. A. A. Polovtsov, *Dnevnik gosudarstvennogo sekretaria A. A. Polovtsova*, II, p. 453.
4. Marks, *Road to Power*, pp. 127–128.
5. Olga Crisp, *Studies in the Russian Economy Before 1914* (London, 1976), p. 27.
6. Quoted in Marks, *Road to Power*, p. 152.
7. *Ibid.*, pp. 149–153; Liashchenko, *History of the National Economy of Russia*, pp. 560–561; Gatrell, *The Tsarist Economy*, pp. 153–155.
8. Marks, *Road to Power*, p. 176.
9. Sabler and Sosnovskii, *Sibirskaia zheleznaia doroga*, 228–231, 240–247; Dmitriev-Mamonov and Zdziarskii, eds., *Guide to the Great Siberian Railway*, pp. 188, 371, 441–442; Tupper, *To the Great Ocean*, pp. 106, 175–179, 184–190; "Zapiski po sooruzheniiu mostov

cherez bol'shiia reki na Iuzhno- i Severno-Ussuriiskoi zheleznoi dorogakh," in Ministerstvo Putei Soobshcheniia, *Otchet po postroike Severno-Ussuriiskoi zheleznoi dorogi, 1894–1897* (St. Petersburg, 1900), pp. 271–300.

10. Sabler and Sosnovskii, *Sibirskaia zheleznaia doroga,* pp. 158, 199–203, 240–247; Dmitriev-Mamonov and Zdziarskii, eds., *Guide to the Great Siberian Railway,* pp. 168–170, 327–347; Tupper, *To the Great Ocean,* pp. 183–184, 175–179; Reverend Francis E. Clark, *A New Way Around an Old World* (New York and London, 1901), pp. 129–130.

11. V. F. Borzunov, *Proletariat Sibiri i Dal'nego Vostoka,* pp. 16–22; Donald W. Treadgold, *Great Siberian Migration,* p. 32.

12. Treadgold, *Great Siberian Migration,* pp. 26–42.

13. Sabler and Sosnovsksii, *Sibirskaia zheleznaia doroga,* pp. 152–156; Dmitriev-Mamonov and Zdziarskii, eds., *Guide to the Great Siberian Railway,* pp. 179–181, 191, 213.

14. Quoted in Tupper, *To the Great Ocean,* p. 115.

15. Quoted in Borzunov, *Proletariat Sibiri i Dal'nego Vostoka,* p. 92.

16. Marks, *Road to Power,* p. 181.

17. Borzunov, *Proletariat Sibiri i Dal'nego Vostoka,* p. 133.

18. *Ibid.,* pp. 132–138.

19. Quotes are from *ibid.,* pp. 124–126.

20. David McCullough, *The Path Between the Seas: The Creation of the Panama Canal, 1870–1914* (New York, 1977), pp. 173, 610.

21. Sabler and Sosnovskii, *Sibirskaia zheleznaia doroga* pp. 247–248; Tupper, *To the Great Ocean,* pp. 324–331.

22. Borzunov, *Proletariat Sibiri i Dal'nego Vostoka,* pp. 139–147.

23. Z. Vol'skii, *Vsia Sibir': Spravochnaia kniga po vsem otrasliam kul'turnoi i torgovo-promyshlennoi zhizni Sibiri* (St. Petersburg, 1908), pp. 250–252.

24. Sabler and Sosnovskii, *Sibirskaia zheleznaia doroga,* pp. 217–220; Tupper, *To the Great Ocean,* pp. 234, 338.

25. Fraser, *Real Siberia,* pp. 133–134.

26. Marks, *Road to Power,* p. 201.

27. Tupper, *To the Great Ocean,* pp. 117, 248.

28. Marks, *Road to Power,* p. 196.

29. Quoted in Tupper, *To the Great Ocean,* p. 251.

30. Marks, *Road to Power,* p. 206.

31. *Ibid.,* p. 217.

Chapter 30. Amur River Boats and Russia's Manchurian Connection

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2. Tupper, *To the Great Ocean,* pp. 234–235.

3. Clark, *New Way Around an Old World,* p. 132.

4. Dmitriev-Mamonov and Zdziarskii, eds., *Guide to the Great Siberian Railway,* p. 376.

5. Fraser, *Real Siberia,* p. 151.

6. *Ibid.,* pp. 150–151; Clark, *New Way Around an Old World,* p. 130.

7. Dmitriev-Mamonov and Zdziarskii, eds., *Guide to the Great Siberian Railway,* p. 518.

8. Fraser, *Real Siberia,* pp. 159–160.

9. Clark, *New Way Around an Old World,* pp. 103, 100.

10. Fraser, *Real Siberia,* pp. 162–163.

11. Harry de Windt, *The New Siberia* (London, 1896), pp. 227–228.

12. Clark, *New Way Around an Old World,* pp. 71, 101.

13. Wirt Gerrare [William Oliver Greener], *Greater Russia: The Continental Empire of the Old World* (New York, 1903), p. 160.

14. Bates, *Russian Road to China,* pp. 121–122.

15. Lionel F. Gowing, *Five Thousand Miles in a Sledge: A Mid-Winter Journey Across Siberia* (London, 1889), pp. 111, 137, 136, 149.

16. Clark, *New Way Around an Old World,* p. 87.

17. Fraser, *Real Siberia,* p. 179; see also pp. 167–180.

18. Gerrare, *Greater Russia,* p. 199.

19. Dmitriev-Mamonov and Zdziarskii, eds., *Guide to the Great Siberian Railway,* p. 444.

20. Clark, *New Way Around an Old World,* p. 198.

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23. The protocol for this bribe was written in Witte's hand and dated Moscow, May 23, 1896. See Romanov, *Russia in Manchuria,* pp. 402–403, note 74.

24. Sabler and Sosnovskii, *Sibirskaia zheleznaia doroga,* pp. 235–248; Tupper, *To the Great Ocean,* pp. 320–331.

25. Tupper, *To the Great Ocean,* pp. 331–335.

Chapter 31. Lake Baikal

1. Valentin Rasputin et al., *Baikal* (Moscow, 1985), unpaginated.

2. *Ibid.;* Tupper, *To the Great Ocean,* pp. 217–219, 224.

3. Okladnikov et al., eds., *Istoriia Sibiri,* II, p. 51.

4. Semënov, *Siberia: Its Conquest and Development,* 93.

5. Don Belt, "The World's Great Lake," *NG* (June 1992), p. 17.

6. *Ibid.,* p. 20; Rasputin et al., eds., *Baikal, passim;* Dmitriev-Mamonov and Zdziarskii, eds., *Guide to the Great Siberian Railway,* pp. 334–337.

7. Rasputin et al., *Baikal, passim.*

8. Fraser, *The Real Siberia,* pp. 132, 135.

9. Marks, *Road to Power,* p. 204.

10. Tupper, *To the Great Ocean,* p. 337.

11. Quoted in *ibid.,* pp. 337–338.

12. *Ibid.,* pp. 337–340; Sabler and Sosnovskii, *Sibirskaia zheleznaia doroga,* pp. 213–220.

13. Quoted in Sabler and Sosnovskii, *Sibirskaia zheleznaia doroga,* p. 443.

14. Quoted in S. G. Svatikov, *Rossiia i Sibir',* pp. 52, 89.

15. Quoted in Marks, *Road to Power,* p. 80.

Chapter 32. "A Small Victorious War"

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2. *Ibid.,* p. 15.

3. Konstantin Mochul'skii, *Vladimir Solov'ev: Zhizn' i uchenie,* 2nd ed. (Paris, 1951), pp. 253–261; Samuel Cioran, *Vladimir Solov'ev and the Knighthood of the Divine Sophia* (Waterloo, Iowa, 1977), pp. 62–67.

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Chapter 34. Siberia's Wild East

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