

LOREN R. GRAHAM

# EXECUTED

*The* GHOST *of the*

ENGINEER



*Technology and the Fall  
of the Soviet Union*

LOREN R. GRAHAM



# The Ghost of the Executed Engineer

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Technology  
and the Fall of  
the Soviet Union

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To the memory of Victor Lincoln Albjerg,  
my teacher of the humanities at an American  
engineering institution. He shared Palchinsky's  
vision, and his influence on hundreds of students  
contributes to the United States' industrial  
and academic strengths.

# Illustrations

*Following page 80*

Peter Palchinsky in Turin

*State Archive of the Russian Federation*

Nina Palchinsky

*State Archive of the Russian Federation*

Peter Palchinsky at his desk

*State Archive of the Russian Federation*

Peter and Nina Palchinsky

*State Archive of the Russian Federation*

Construction of the Dnieper River dam

*Sovfoto*

Workers assembling water intake at Dneprostroy

*TASS/Sovfoto*

Col. Hugh Cooper at Dneprostroy

*Courtesy of estate of Margaret Bourke-White*

Workers digging at Magnitka Hill

*Sovfoto*

Young worker at Magnitogorsk

*Courtesy of estate of Margaret Bourke-White*

Bricklayer at Magnitogorsk

*Courtesy of estate of Margaret Bourke-White*

Blast furnace at Magnitogorsk

*Courtesy of estate of Margaret Bourke-White*

Map of the White Sea Canal

Belomor: An Account of the Construction of the New Canal between the White Sea and the Baltic Sea (*New York: Harrison Smith and Robert Hass, 1935*)

Prison workers at the White Sea Canal

*M. Gor'kii, L. Averbakh, S. Firin, Belomorsko-Baltiiskii Kanal imeni Stalina (Moscow: OGIZ, 1934)*

N. I. Khrustalev, chief engineer of the White Sea Canal

*M. Gor'kii, L. Averbakh, S. Firin, Belomorsko-Baltiiskii Kanal imeni Stalina (Moscow: OGIZ, 1934)*

First steamers on the White Sea Canal

*M. Gor'kii, L. Averbakh, S. Firin, Belomorsko-Baltiiskii Kanal imeni Stalina (Moscow: OGIZ, 1934)*

Construction of the Baikal-Amur Railway

*TASS/Sovfoto*

Aerial view of the Chernobyl nuclear power plant

*TASS/Sovfoto*

Monument at the end of the White Sea Canal

*Intourist/Sovfoto*

# Prologue

This book attempts to help explain why the Soviet Union failed to become a modern industrialized country. It starts with the life story of a remarkable Russian engineer, Peter Palchinsky, who saw clearly at the beginning of Soviet industrialization the mistakes that were being made, and tried to rectify them. The story of Palchinsky serves as a parable for the remainder of the book, which presents an analysis of Soviet attitudes toward industry and technology during the sixty years after Palchinsky's death. Palchinsky's critique of the misuse of technology and squandering of human energy continued to haunt the Soviet Union until its demise at the end of 1991.

Interwoven with these two parts of the book is a personal story of my quest for more than thirty years to unravel the riddle of Palchinsky and his role in the efforts to industrialize the Soviet Union. Almost every textbook of Soviet history mentions the Industrial Party Trial in 1930, a prosecution of many leading Russian engineers. Few of those texts offer any information about the alleged head of the Industrial Party, Peter Palchinsky. I first learned his name while doing graduate study at Moscow University in 1960–61. My early attempts to find out more about him were frustrated by Soviet secrecy. The archives I needed to search were closed, not only to me but to all researchers, including Soviet ones. However, from the 1960s on I kept a file on Palchinsky, adding the tidbits of information that I picked up from time to time. Long before the archives became

available small breakthroughs occurred, moments when I found something about Palchinsky during frequent trips to the Soviet Union, which allowed me ample opportunity to observe the failures of technology to serve the Soviet people.

One important discovery came in the early 1980s, when my colleague, Sheila Fitzpatrick, who knew of my interest in the Soviet engineers, told me there was a copy of a secret police report on the Industrial Party at the Institute of Scientific Information on the Social Sciences (INION) of the Academy of Sciences of the USSR. The difficulties I experienced in gaining access to this material exemplify the obstacles to research under the Soviet regime.

Finding such a report in the public collections of a Soviet library was highly unlikely to begin with. Usually sensitive materials were kept in Special Collections (*spetskhran*) in Soviet libraries, and were not even listed in the public catalogs. And the Soviet definition of "sensitive materials" was extremely restrictive. My own books, for example, were not listed in the catalog of the Lenin Library—the largest library in the Soviet Union—even though they were academic monographs on rather narrow subjects. There was no hope of finding the works of such well-known "enemies" of the Soviet regime as Nikolai Bukharin or Leon Trotsky. (My heart did skip a beat when in the 1970s I found a reference in the Lenin Library card catalog to "L. Trotsky." This Trotsky, alas, turned out to be an automotive engineer specializing in the design of brakes.)

The INION library is open only to researchers connected with the Academy of Sciences. As a participant in an official exchange between the Soviet and American academies I was eligible for a pass. The library is different from all others in the Soviet Union in which I have worked: cleaner, lighter, and with a freer atmosphere. To my surprise, I found two of my books in the catalog, as well as others by Western scholars working in Russian and Soviet studies. Even several of Bukharin's and Trotsky's works were listed. And the col-



lection of materials on the 1920s was far richer than what is openly catalogued in the Lenin Library.

The relative unorthodoxy of the INION collections has an interesting history. The heart of the collection is the library of the Communist Academy of the twenties, an association of Marxist scholars that flourished before Stalinist controls clamped down on intellectual life in the Soviet Union. Their articles in the Communist Academy's journal often expressed views that were later condemned. A collection based on their work would thus be more variegated politically than the typical Soviet library.

Searching through the card catalog under the subject heading of the Industrial Party I soon found a reference to a confidential report on the early engineers by the OGPU (predecessor of the KGB). The report had been prepared for the members of the Central Committee of the Communist Party on the occasion of the Sixteenth Congress of the Party (June 26–July 13, 1930), a few months before the Industrial Party Trial. A quick glance at the report confirmed that the materials were sensitive. Though I wanted a copy of the entire manuscript, I feared that my request would be refused and that the original report would be taken away from me. I therefore made extensive notes on the report before taking it to the photoduplication department of INION, where the young woman in charge, whom I will call Nina Smirnova, knew me. To my delight, she accepted the duplication order without looking at the title or asking any questions. About a week later, I picked up my microfilm and immediately sent it back to the United States via the American Embassy. Then I returned to my note-taking from the original, secure in the knowledge that I would not lose access to this valuable source.

My apprehensions were confirmed when Nina Smirnova sought me out in the library a day or two later and demanded that I return the report. I gave the original to her but told her the copy had already been mailed home. She became very agitated, and said that

the Communist Party organization at INION had become aware of my research and had forbidden me to have access to unpublished materials. She asked that I not tell anyone that I had mailed a copy of the secret police report to the United States. I replied that it seemed strange to be so concerned about an event that had occurred more than fifty years earlier. I also observed that the report had been openly listed in the catalog at INION, and that I was therefore not doing anything wrong. Ms. Smirnova replied, "It's not openly listed anymore." I expressed the hope that my research had not gotten her into trouble. She said that if I kept my mouth shut, she would be all right. We parted on good terms.

Returning to the catalog, I again looked up the reference to the report. The card listing it had disappeared, but at the bottom of the tray was a telltale piece of cardboard, showing that the card had been simply ripped out.

Soviet resistance to my efforts to learn more about Peter Palchinsky began to crumble in the late eighties. As more and more information came into my hands, I began to realize that his ideas survived his death and outlived the USSR itself. His ghost has guided me to an understanding of the failures of Soviet technology and the great cost that industrialization exacted from the Soviet people.

*Grand Island, Lake Superior*  
*June 1993*

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# 1 The Radical Engineer

On a cold night in April 1928, Stalin's secret police knocked on the door of Peter Palchinsky's Leningrad apartment. When Palchinsky, a fifty-four-year-old engineer, came to the door the police announced that he was under arrest.<sup>1</sup> They searched his apartment and found an enormous collection of personal papers concerning his work as an engineer for more than thirty years. As the police took Palchinsky away they commanded his wife, Nina Aleksandrovna, to carry her husband's papers in bags to the police station. She heard no more about the fate of her husband for more than a year, until, on May 24, 1929, the Soviet newspaper *Izvestiia* published a short and shocking statement. Nina Aleksandrovna read that her husband had been the leader of an anti-Soviet conspiracy trying to overthrow the government and restore capitalism, that he had been convicted without trial for treason, and that immediately thereafter he was executed by a firing squad.<sup>2</sup>

Many years later the arrest and death of Palchinsky were briefly described by Aleksandr Solzhenitsyn in his *Gulag Archipelago*. Solzhenitsyn observed that the papers of this outstanding engineer had disappeared into the "maw" of the secret police, "once and for all, forever."<sup>3</sup> Until the present day little has been known of Palchinsky, although many Western historians recognized his prominent role in the industrialization and technical development of Russia during the first decades of this century. In 1982 an American historian managed

to write a few paragraphs about him in an encyclopedia of Russian history, noting that "little information is available on Palchinsky, and Soviet sources are silent on him."<sup>4</sup>

Sixty-two years after Palchinsky's execution, on an icy Moscow day in January 1991, I was permitted to inspect a government archive that I had been denied entrance to for several decades. The Soviet Union was now in the midst of Gorbachev's reforms, and although the stocks in food in stores were almost nonexistent, *glasnost'* had brought new life to political debate and to scholarly research. Inside the archive, I found a microfilm index to the collections, but no reels for the microfilm readers. At first stymied by this technical problem, I soon noticed a neighbor jamming his finger into a reel-less microfilm roll and frantically cranking away at the reader with the other hand. I imitated him and the film became legible—just barely. After an hour or so I spotted a reference to the file of P. A. Palchinsky. Upon locating the file, I was overwhelmed by its size. Because archive rules stipulated that I could order only ten packets each day from the hundreds in the file, it quickly dawned on me that my fact-finding was turning into an odyssey. Furthermore, whenever I returned to the microfilm index I had to obey the archive rule of turning the microfilm reader off for fifteen minutes every hour so that it would cool down and not ignite the film. I soon learned that if I came to the archive early enough in the morning I could get one of the few foreign-made microfilm readers for which this rule did not apply. Over the following months and during three more research trips to Moscow, the entire collection that Nina Aleksandrovna Pal'chinskaia had hauled off to the police station slowly surfaced, like a giant fish from beneath the water.

Reading through these materials as the Soviet Union disintegrated around me, I saw that here was a clue to one of the riddles of Soviet history. Why had the USSR been unable to benefit fully from its impressive start in technological modernization? From its inception the leaders of the Soviet Union had put great emphasis

on technology, launching programs of electrification, industrialization, and weapons building that inspired some Western observers and alarmed others. The Soviet efforts to exploit technology at first seemed quite successful. On Soviet soil during the Five-Year Plans launched before World War II arose the world's largest steel mills and largest hydroelectric power plants. Foreign observers and participants, from the photographer Margaret Bourke-White to the labor leader Walter Reuther, came to witness and admire the "Great Soviet Experiment."

The Soviet economy continued to lunge forward in a spasm of expansion and modernization that fascinated observers everywhere. Alexander Gerschenkron, an economic historian at Harvard University, advanced the thesis of the "advantages of backwardness," maintaining that when the Soviet Union installed factory equipment for the first time, it was the latest model, putting the USSR in a superior position to those countries that had expanded earlier and were saddled with obsolescent technology. As late as 1960, over forty years after the Russian Revolution, Robert Campbell, an economist who would become a leader among specialists on the Soviet Union, noted that the Soviet economy was growing almost twice as fast as the American one and concluded, "As long as there is a differential in the rate of growth the Russians will inevitably catch up with us, and if the differential continues at anything like its present magnitude, they will gain on us rapidly."<sup>5</sup>

More than two generations after the Russian Revolution, we now see that this grand effort to master technology and use it for the nation's benefit failed. Gorbachev, Yeltsin, and other recent leaders of the Soviet Union and its successor states have instead appealed for Western help in modernization. What caused this failure? The usual answer, the limitations of a centrally planned economy, is only a partial one. After all, the Soviet centrally planned economy worked well enough to build up an industrial establishment that was, in its heyday, the second largest in the world; it enabled the Soviet Union

to resist and throw back Hitler's armies, and to continue to expand for many decades, both before and after World War II. It gave the Soviet Union the ability to launch the world's first artificial satellite and to put the first human being into orbit around the earth. So long as Soviet citizens had faith in their system it seemed to work fairly well, at least in comparison with other backward nations trying to modernize. Was there something about the way technology was used that contributed to the loss of faith and the consequent failure? The story of Peter Palchinsky's life and ideas about technology provides an important piece of this puzzle.<sup>6</sup>

### *The Making of a Young Engineer*

Peter Akimovich Palchinsky came from a large, complicated, and troubled family. His father, Akim Fedorovich Pal'chinskii, a land surveyor and estate appraiser, married twice and had five children by his first wife, Aleksandra, and seven children by his second, Olga. Born on October 5, 1875, Peter was the oldest son, and was regarded by his siblings as the person to whom to confess difficulties and from whom to seek aid, psychological and financial. As a child Peter lived with his mother, Aleksandra, in the Volga river city of Kazan, along with his brother Fedor and his three sisters Anna, Sophia, and Elena. His four half-brothers—Ivan, Mikhail, Aleksandr, and Il'ia—and three half-sisters—Antonina, Julia, and Aleksandra—lived with his father and their mother in the city of Saratov.

Peter was an energetic youth and a bright student. After the age of eight, when his parents divorced, he saw his father rarely. He confided primarily in his mother, a member of a socially prominent but impecunious noble family. His mother greatly influenced Peter's early education. Under her tutelage he became a good pianist, despite his lack of natural proclivity for the instrument.<sup>7</sup> She also encouraged him to read in the large inherited family library. Peter spent hours buried in the novels, poetry, popular science books, and

historical accounts that he found in his home. At the same time, he lamented to his mother his lack of close friends. She recognized that Peter was unusually self-contained, and she urged him to be more expressive with others.<sup>8</sup> But she also praised his academic accomplishments, which included mastery of French and German by the age of seventeen.<sup>9</sup> Later he would add English and Italian to his linguistic repertory.

In the fall of 1893 Palchinsky entered the Mining Institute in St. Petersburg, one of the elite engineering institutions of tsarist Russia. On the entrance examinations he received excellent scores: German 12 (out of 12), physics 10, mathematics 10.5, Russian 8 (he was sick the day he took this examination). Nevertheless, he ranked twentieth in his entering class of thirty-five students. He took special pride that he had been admitted to the Mining Institute without any help from influential friends or high officials.<sup>10</sup>

During his student years Peter lived on such a modest budget that he often did not have enough money to eat properly. His mother wrote to him: "It is a bitter experience to know that I am completely powerless in improving your situation."<sup>11</sup> When she became sick and died a few weeks later, Peter was reduced to living on a very small student's stipend. To supplement his income, during summer recesses he worked as a laborer on railroads, in factories, and even in coal mines in France.<sup>12</sup> In these occupations he developed a sympathy for the workers and for their efforts to improve pay and working conditions. Ironically, of all the members of Peter's large family, he was the only one who became a financial success, and many of the siblings' letters to Peter contain requests for money. Peter was also the one with the most robust health and steady personality, almost never yielding to the illness and despondency that ran through much of the rest of the family.

Like many young educated Russians at the turn of the century, Peter Palchinsky was attracted to radical political doctrines that promised a better society than the authoritarian and poverty-stricken



one in which he was born. He soon suffered for these beliefs. Even as a student at the Mining Institute he attracted the attention of the tsarist gendarmes, who listed him as a "leader of the movement" of radical students, evidently because he was briefly the chairman of a students' assembly. This early political difficulty was a harbinger of many more in his life: he would be imprisoned five or six times and was under almost constant surveillance by the tsarist police and later by the Soviet secret police.

Peter's interest in politics and the arts was nurtured by his family. Fedor, the brother who was closest to Peter in age and who tried to help support the family, sought relief from his boring work as a low-ranking official by attending the theater, consorting with actors at receptions and parties, and volunteering to assist theater directors. On visits home to Kazan, Peter joined his brother in attending cultural events. He was also strongly attracted to the arts, but did not submerge his personality in them as Fedor seemed to do.

The other siblings, like Fedor, had difficulty finding satisfying work and adjusting to life. Peter's sister Sophia was often sick and manifested little energy. She married a Muslim citizen of Russia named Mukhamed Syzdikov, by whom she had one daughter, but the marriage ended in divorce.

The youngest sister Elena was an inveterate romantic who loved literature, music, and the theater, and dreamed of becoming an artist. She went to Brussels and Paris to attend lectures in the arts and literature. While in Paris she joined up with Russian radical exiles who influenced her politically. In 1898 Elena attended a congress of socialists in Paris, and there she discovered the writings of Karl Marx. She asked Peter to send her a copy of the Russian translation of *Capital*, but it never arrived. It is not clear whether Peter refused to buy it, or whether it was lost in the mail. Elena was forced to try to read the book in French.

Always short of funds, Elena made several trips back and forth