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In the Kingdom of Ice and *On Desperate Ground*

The Untold Story *of the*
World's Greatest Nuclear Disaster

MIDNIGHT *in* CHERNOBYL

Adam Higginbotham

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MIDNIGHT *in* CHERNOBYL

*The Untold Story of the World's
Greatest Nuclear Disaster*

ADAM HIGGINBOTHAM

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For Vanessa

Note on Translation and Transliteration

This book is a work of history. Belarusian, Russian, and Ukrainian words have been

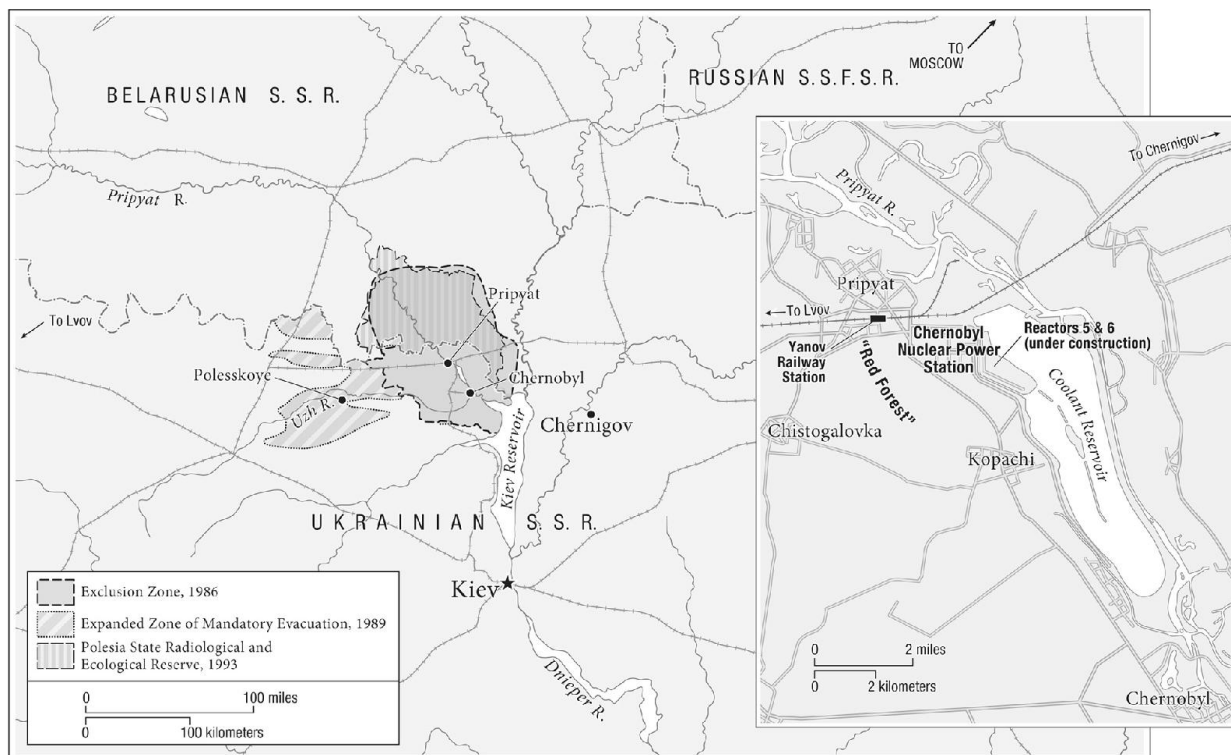
spelled in accordance with the Library of Congress transliteration system and

occasionally simplified further to make them as readable as possible in English. The

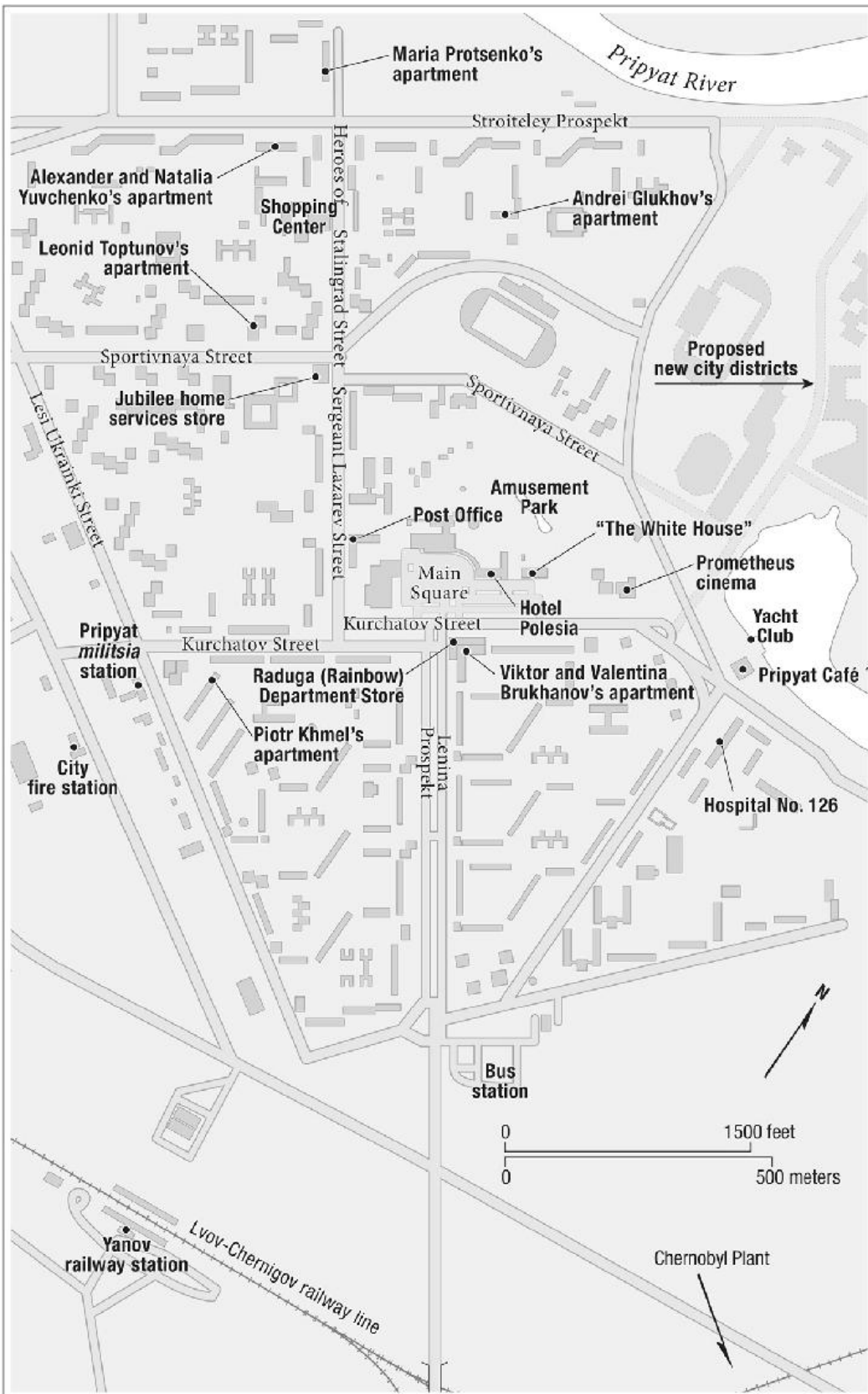
names of places and people, and the units of measurement, are those commonly used

in the Soviet Union at the time the events took place.



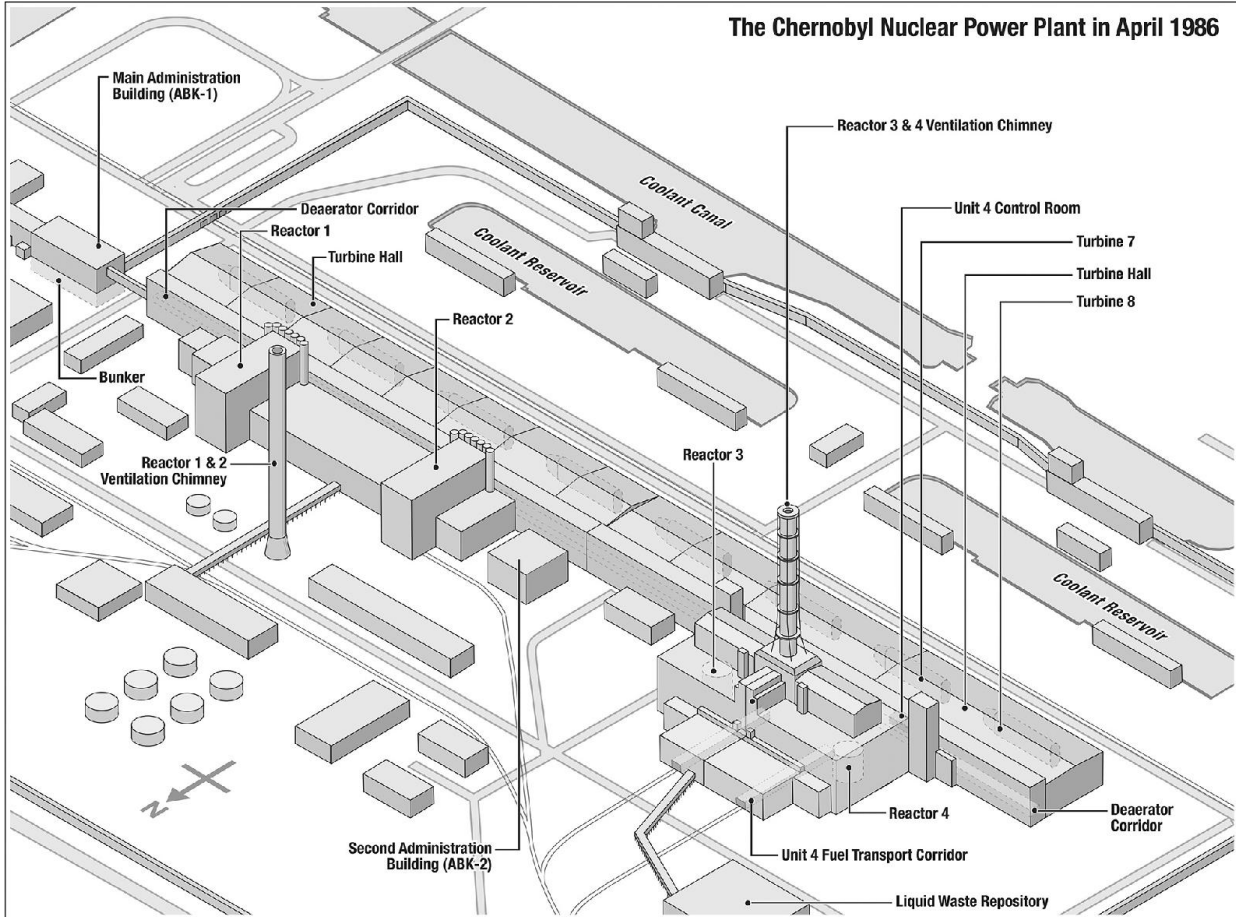


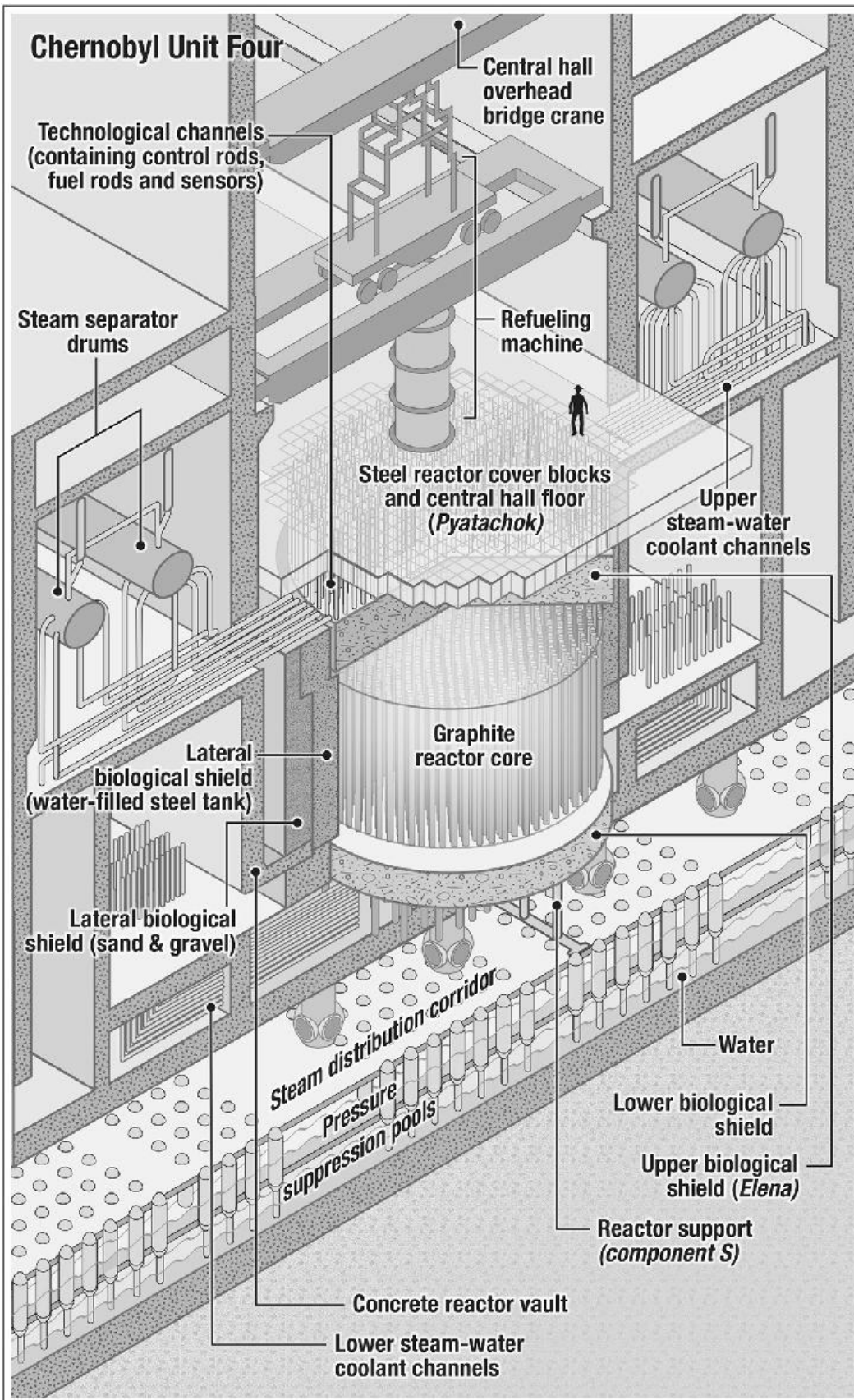
THE CHERNOBYL AREA AND THE EXCLUSION ZONE, 1986-93



THE CITY OF PRIPYAT IN APRIL 1986

The Chernobyl Nuclear Power Plant in April 1986





Cast of Characters

The Chernobyl Atomic Energy Station and the City of Pripyat

MANAGEMENT

Viktor Brukhanov plant director

Nikolai Fomin chief engineer; deputy to the plant director

Anatoly Dyatlov deputy chief engineer for operations

STAFF

Alexander Akimov foreman, fifth shift of reactor Unit Four

Leonid Toptunov senior reactor control engineer, fifth shift, Unit Four

Boris Stolyarchuk senior unit control engineer, fifth shift, Unit Four

Yuri Tregub senior reactor control engineer, Unit Four

Alexander Yuvchenko senior mechanical engineer, fifth shift, Unit Four

Valery Perevozchenko reactor shop shift foreman, fifth shift, Unit Four

Serafim Vorobyev head of plant civil defense

Veniamin Prianichnikov head of training in plant nuclear safety

FIREFIGHTERS

Major Leonid Telyatnikov chief of Paramilitary Fire Station Number Two
(Chernobyl plant)

Lieutenant Vladimir Pravik head of third watch, Paramilitary Fire Station
Number Two (Chernobyl plant)

Lieutenant Piotr Khmel head of first watch, Paramilitary Fire Station
Number

Two (Chernobyl plant)

Lieutenant Viktor Kibenok head of third watch, Paramilitary Fire Station

Number Six (Pripyat)

Sergeant Vasily Ignatenko member of third watch, Paramilitary Fire
Station

Number Six (Pripyat)

PRIPYAT

Alexander Esaulov deputy chairman of the Pripyat *ispolkom*, or city
council; the

deputy mayor

Maria Protsenko chief architect for the city of Pripyat

Natalia Yuvchenko teacher of Russian language and literature at School
Number

Four, and wife of Alexander Yuvchenko

The Government

Mikhail Gorbachev General secretary of the Communist Party of the
Soviet

Union; leader of the USSR

Nikolai Ryzhkov chairman of the Soviet Council of Ministers; prime
minister of

the USSR

Yegor Ligachev chief of ideology for the Communist Party of the Soviet Union; the

second most powerful figure in the Politburo

Viktor Chebrikov chairman of the Committee for State Security (KGB) of the

USSR

Vladimir Dolgikh secretary of the Communist Party Central Committee with

responsibility for heavy industry, including nuclear power

Vladimir Marin head of the nuclear power sector of the Heavy Industry and

Energy Division of the Communist Party Central Committee

Anatoly Mayorets Soviet minister of energy and electrification

Gennadi Shasharin deputy Soviet minister of energy, with specific responsibility

for nuclear energy

Vladimir Scherbitsky first secretary of the Communist Party of Ukraine and

member of the Soviet Politburo; leader of the Soviet Socialist Republic of Ukraine

Alexander Lyashko chairman of the Council of Ministers of the Soviet Socialist

Republic of Ukraine; the Ukrainian prime minister

Vladimir Malomuzh second secretary of the Kiev Oblast Communist Party

Vitali Sklyarov Ukrainian minister of energy and electrification

Boris Scherbina deputy chairman of the Soviet Council of Ministers; first chairman

of the government commission in Chernobyl

Ivan Silayev deputy chairman of the Soviet Council of Ministers, responsible for

the engineering industry; member of the Central Committee of the Communist

Party of the USSR; second chairman of the government commission in Chernobyl

The Nuclear Experts

Anatoly Aleksandrov chairman of the Soviet Academy of Sciences and director of

the Kurchatov Institute of Atomic Energy, responsible for the development of

nuclear science and technology throughout the USSR

Efim Slavsky minister of medium machine building, in control of all aspects of the

Soviet nuclear weapons program

Nikolai Dollezhal director of NIKIET, the Soviet reactor design agency

Valery Legasov first deputy director of the Kurchatov Institute, the immediate

deputy to Anatoly Aleksandrov

Evgeny Velikhov deputy director of the Kurchatov Institute; scientific advisor to

Mikhail Gorbachev and rival to Valery Legasov

Alexander Meshkov deputy minister of the Ministry of Medium Machine Building

Boris Prushinsky chief engineer of Soyuzatomenergo, the Ministry of Energy's

department of nuclear power; leader of OPAS, the ministry's emergency response

team for accidents at nuclear power stations

Alexander Borovoi head of the neutrino laboratory at the Kurchatov Institute and

scientific leader of the Chernobyl Complex Expedition

Hans Blix director of the International Atomic Energy Agency, based in Vienna,

Austria

The Generals

General Boris Ivanov deputy chief of the general staff of the USSR's Civil Defense

Forces

General Vladimir Pikalov commander of the Soviet army chemical troops

Major General Nikolai Antoshkin chief of staff of the Seventeenth Airborne

Army, Kiev military district

Major General Nikolai Tarakanov deputy commander of the USSR's Civil

Defense Forces

The Doctors

Dr. Angelina Guskova head of the clinical department of Hospital Number Six,

Moscow

Dr. Alexander Baranov head of hematology, Hospital Number Six, Moscow

Dr. Robert Gale hematology specialist at UCLA Medical Center, Los Angeles

Prologue

SATURDAY, APRIL 26, 1986: 4:16 P.M.

CHERNOBYL ATOMIC ENERGY STATION, UKRAINE

Senior Lieutenant Alexander Logachev loved radiation the way other men loved their

wives. Tall and good-looking, twenty-six years old, with close-cropped dark hair and

ice-blue eyes, Logachev had joined the Soviet army when he was still a boy. They had

trained him well. The instructors from the military academy outside Moscow taught

him with lethal poisons and unshielded radiation. He traveled to the testing grounds

of Semipalatinsk in Kazakhstan, and to the desolate East Urals Trace, where the

fall out from a clandestine radioactive accident still poisoned the landscape;

eventually, Logachev's training took him even to the remote and forbidden islands of

Novaya Zemlya, high in the Arctic Circle and ground zero for the detonation of the

terrible *Tsar Bomba*, the largest thermonuclear device in history.

Now, as the lead radiation reconnaissance officer of the 427th Red Banner

Mechanized Regiment of the Kiev District Civil Defense force, Logachev knew how

to protect himself and his three-man crew from nerve agents, biological weapons,

gamma rays, and hot particles: by doing their work just as the textbooks dictated; by

trusting his dosimetry equipment; and, when necessary, reaching for the nuclear,

bacterial, and chemical warfare medical kit stored in the cockpit of their armored car.

But he also believed that the best protection was psychological. Those men who

allowed themselves to fear radiation were most at risk. But those who came to love

and appreciate its spectral presence, to understand its caprices, could endure even the

most intense gamma bombardment and emerge as healthy as before.

As he sped through the suburbs of Kiev that morning at the head of a column of

more than thirty vehicles summoned to an emergency at the Chernobyl nuclear

power plant, Logachev had every reason to feel confident. The spring air blowing

through the hatches of his armored scout car carried the smel of the trees and freshly

cut grass. His men, gathered on the parade ground just the night before for their

monthly inspection, were drilled and ready. At his feet, the battery of radiological

detection instruments—including a newly installed electronic device twice as

sensitive as the old model—murmured softly, revealing nothing unusual in the

atmosphere around them.

But as they finally approached the plant later that morning, it became clear that

something extraordinary had happened. The alarm on the radiation dosimeter first

sounded as they passed the concrete signpost marking the perimeter of the power

station grounds, and the lieutenant gave orders to stop the vehicle and log their

findings: 51 roentgen per hour. If they waited there for just sixty minutes, they would

absorb the maximum dose of radiation permitted Soviet troops during wartime.

They drove on, following the line of high-voltage transmission towers that marched

toward the horizon in the direction of the power plant; their readings climbed steadily

further, before falling again.

Then, as the armored car rumbled along the concrete bank of the station's coolant

canal, the outline of the Fourth Unit of the Chernobyl nuclear power plant finally

became visible, and Logachev and his crew gazed at it in silence. The roof of the

twenty-story building had been torn open, its upper levels blackened and collapsed

into heaps of rubble. They could see shattered panels of ferroconcrete, tumbled

blocks of graphite, and, here and there, the glinting metal casings of fuel assemblies

from the core of a nuclear reactor. A cloud of steam drifted from the wreckage into

the sunlit sky.

Yet they had orders to conduct a full reconnaissance of the plant. Their armored

car crawled counterclockwise around the complex at ten kilometers an hour. Sergeant

Vlaskin called out the radiation readings from the new instruments, and Logachev

scribbled them down on a map, hand-drawn on a sheet of parchment paper in

bal point pen and colored marker: 1 roentgen an hour; then 2, then 3. They turned

left, and the figures began to rise quickly: 10, 30, 50, 100.

“Two hundred fifty roentgen an hour!” the sergeant shouted. His eyes widened.

“Comrade Lieutenant—” he began, and pointed at the radiometer.

Logachev looked down at the digital readout and felt his scalp prickle with terror:

2,080 roentgen an hour. An impossible number.

Logachev struggled to remain calm and remember the textbook; to conquer his

fear. But his training failed him, and the lieutenant heard himself screaming in panic

at the driver, petrified that the vehicle would stall.

“Why are you going this way, you son of a bitch? Are you out of your fucking

mind?” he yelled. “If this thing dies, we’ll all be corpses in fifteen minutes!”

PART 1

BIRTH OF A CITY

The Soviet Prometheus

At the slow beat of approaching rotor blades, black birds rose into the sky,
scattering

over the frozen meadows and the pearly knots of creeks and ponds lacing the
Pripyat

River basin. Far below, standing knee deep in snow, his breath lingering in
heavy

clouds, Viktor Brukhanov awaited the arrival of the *nomenklatura* from
Moscow.

When the helicopter touched down, the delegation of ministers and
Communist

Party officials trudged together over the icy field. The savage cold gnawed at
their

heavy woolen coats and nipped beneath their tal fur hats. The head of the
Ministry

of Energy and Electrification of the USSR and senior Party bosses from the
Soviet

Socialist Republic of Ukraine joined Brukhanov at the spot where their
audacious

new project was to begin. Just thirty-four years old, clever and ambitious, a
dedicated

Party man, Brukhanov had come to western Ukraine with orders to begin
building

what—if the Soviet central planners had their way—would become the
greatest

nuclear power station on earth.

As they gathered near the riverbank, the dozen men toasted their plans with shots

of cognac. A state photographer posed them between long-handled shovels and a

theodolite, the helicopter waiting, squat and awkward, in the background. They

stood in the snow and watched as Minister Neporozhny drove a ceremonial stake,

centimeter by centimeter, into the iron ground.

It was February 20, 1970. After months of deliberation, the Soviet authorities had

at last settled on a name for the new power plant that would one day make the

USSR's nuclear engineering famous across the globe. They had considered a few

options: the North Kiev, or the Western Ukraine, or, perhaps, the Pripyat Atomic

Energy Station. But finally, Vladimir Scherbitsky, the formidable leader of the

Ukrainian Communist Party, signed a decree confirming that the station would take

the name of the regional capital: a small but ancient town of two thousand people,

fourteen kilometers from where Brukhanov and his bosses stood in the snow-covered

field.

The town of Chernobyl had been established in the twelfth century. For the next

eight hundred years, it was home to peasants who fished in the rivers, grazed cows in

the meadows, and foraged for mushrooms in the dense woods of northwestern

Ukraine and southern Belarus. Swept repeatedly by pogrom, purge, famine, and war,

by the second half of the twentieth century, Chernobyl was finally at peace. It had

evolved into a quiet provincial center, with a handful of factories, a hospital, a library,

a Palace of Culture; there was a small shipyard to service the tugs and barges that plied

the Pripyat and the Dnieper, the two rivers that met nearby. Water permeated the

surrounding countryside, an endlessly flat landscape of peat bogs, marshes, and

sodden forests that formed part of the Dnieper River basin, a network of thirty-two

thousand rivers and streams that covered almost half of Ukraine. Just fifteen

kilometers downstream from the site chosen for the new power station, the rivers

joined and flowed onward to the Kiev Sea, a massive hydroelectric reservoir providing

fresh water to the two and a half million citizens of the republic's capital, two hours'

drive away to the southeast.

Viktor Brukhanov had arrived in Chernobyl earlier that winter. He checked into the

town's only hotel: a bleak, single-story building on Sovietskaya Street. Slight but

athletic, he had a narrow, anxious face, an olive complexion, and a head of tight, dark

curls. The oldest of four children, Brukhanov was born to ethnically Russian parents

but raised in Uzbekistan, amid the mountains of Soviet Central Asia. He had an

exotic look: when they eventually met, the divisional KGB major thought the young

director could be Greek.

He sat down on his hotel bed and unpacked the contents of his briefcase: a notebook, a set of blueprints, and a wooden slide rule. Although now the director

and, as yet, sole employee of the Chernobyl Atomic Energy Station, Brukhanov knew

little about nuclear power. Back at the Polytechnic Institute in Tashkent, he had

studied electrical engineering. He had risen quickly from lowly jobs in the turbine

shop of an Uzbek hydroelectric power plant to overseeing the launch of Ukraine's

largest coal-fired station in Slavyansk, in the industrial east of the republic. But at the

Ministry of Energy in Moscow, knowledge and experience were regarded as less

important qualifications for top management than loyalty and an ability to get things

done. Technical matters could be left to the experts.

At the dawn of the 1970s, in a bid to meet its surging need for electricity and to

catch up with the West, the USSR embarked upon a crash program of reactor

building. Soviet scientists had once claimed to lead the world in nuclear engineering

and astonished their capitalist counterparts in 1954 by completing the first reactor to

generate commercial electricity. But since then, they had fallen hopelessly behind. In

July 1969, as US astronauts made their final preparations to land on the moon, the

Soviet minister of energy and electrification called for an aggressive expansion of

nuclear construction. He set ambitious targets for a network of new plants across the

European part of the Soviet Union, with giant, mass-produced reactors that would be

built from the Gulf of Finland to the Caspian Sea.

That winter, as the 1960s came to a close, the energy minister summoned

Brukhanov to Moscow and offered him his new assignment. It was a project of

enormous prestige. Not only would it be the first atomic power plant in Ukraine, but

it was also new territory for the Ministry of Energy and Electrification, which had

never before built a nuclear station from scratch. Until this point, every reactor in the

USSR had been constructed by the Ministry of Medium Machine Building: the

clandestine organization behind the Soviet atom weapons program, so secret that its

very name was a cipher, designed to discourage further curiosity. But whatever the

challenges, Brukhanov, a true believer, gladly enlisted to carry the banner of the Red

Atom.

Sitting alone on his hotel bed, the young engineer confronted his responsibility for

conjuring from an empty field a project expected to cost almost 400 million rubles.

He drew up lists of the materials to begin building and, using his slide rule, calculated

their attendant costs. Then he delivered his estimates to the state bank in Kiev. He

traveled to the city almost every day by bus; when there wasn't a bus, he thumbed a

ride. As the project had no accountant, there was no payroll, so he received no wages.

Before Brukhanov could start building the station itself, he had to create the infrastructure he'd need to bring materials and equipment to the site: a rail spur from

the station in nearby Yanov; a new dock on the river to receive gravel and reinforced

concrete. He hired construction workers, and soon a growing army of men and

women at the controls of caterpillar-tracked excavators and massive BelAZ dump

trucks began to tear pathways through the forest and scrape a plateau from the dun

landscape. To house himself, a newly hired bookkeeper, and the handful of workers

who lived on the site, Brukhanov organized a temporary village in a forest clearing

nearby. A cluster of wooden huts on wheels, each equipped with a small kitchen and

a log-burning stove, the settlement was named simply *Lesnoy*—"of the woods"—by

its new inhabitants. As the weather warmed, Brukhanov had a schoolhouse built

where children could be educated up to fourth grade. In August 1970 he was joined

in Lesnoy by his young family: his wife, Valentina, their six-year-old daughter, Lilia,

and infant son, Oleg.

Valentina and Viktor Brukhanov had spent the first decade of their lives together

helping fulfil the dream of Socialist electrification. Chernobyl was the family's third

power plant start-up in six years; Valentina and Viktor had met as young specialists

working on the building of the Angren hydroelectric project, a hundred kilometers

from the Uzbek capital, Tashkent. Valentina had been the assistant to a turbine

engineer, and Viktor, fresh from university, had been a trainee. He was still planning

to return to university to finish his master's degree when the head of his department

at the plant encouraged him to stay: "Wait," he told him, "you'll meet your future

wife here!" Mutual friends introduced Viktor and Valentina in the winter of 1959:

“You’ll drown in her eyes,” they promised. The couple had been dating for barely a

year when, in December 1960, they were married in Tashkent; Lilia was born in

1964.

To Valentina, Lesnoy seemed a magical place, with fewer than a dozen families

gathered in the huddle of makeshift cottages; at night, when the roar of the bulldozers

and excavators subsided, a velvet silence fell on the glade, the darkness pierced by a

single lantern and the screeching of owls. Every once in a while, to inspire the workers

to help them achieve their construction targets, Moscow sent down Soviet celebrities,

including the Gypsy superstar Nikolai Slichenko and his troupe, to perform shows

and concerts. The family remained in the forest settlement for another two years, as

shock-work brigades excavated the first reactor pit and carved a giant reservoir—an

artificial lake 11 kilometers long and 2.5 kilometers wide that would provide the

millions of cubic meters of cooling water crucial to operating four massive reactors—

from the sandy soil.

Meanwhile, Viktor oversaw the genesis of an entirely new settlement—an *atomgrad*, or “atomic city”—beside the river. The planners designed the settlement,

eventually named Pripyat, to house the thousands of staff who would one day run

the nuclear complex, along with their families. A handful of dormitories and apartment buildings reached completion in 1972. The new town went up so quickly

that at first there were no paved roads and no municipal heating plant to serve the

apartment buildings. But its citizens were young and enthusiastic. The first group of

specialists to arrive on the site were idealists, pioneers of the nuclear future, keen to

transform their homeland with new technology. To them, these problems were

trifles: to keep warm at night, they slept with their coats on.

Valentina and Viktor were among the first to move in, taking a three-bedroom

apartment in 6 Lenina Prospekt, right at the entrance to the new town, in the winter

of 1972. While they waited for the city’s first school to be completed, every day their

daughter, Lilia, hitched a ride in a truck or car back to Lesnoy, where she attended

lessons in the forest schoolhouse.

According to Soviet planning regulations, Pripyat was separated from the plant

itself by a “sanitary zone” in which building was prohibited, to ensure that the

population would not be exposed to fields of low-level ionizing radiation. But Pripyat

remained close enough to the plant to be reached by road in less than ten minutes—

just three kilometers as the crow flies. And as the city grew, its residents began to

build summer houses in the sanitary zone, each happy to disregard the rules in

exchange for a makeshift dacha and a small vegetable garden.

Viktor Brukhanov’s initial instructions for the Chernobyl plant called for the construction of a pair of nuclear reactors—a new model known by the acronym

RBMK, for *reaktor bolshoy moschnosti kanalnyy*, or high-power channel-type reactor.

In keeping with the Soviet weakness for gigantomania, the RBMK was both physically larger and more powerful than almost any reactor yet built in the West,

each one theoretically capable of generating 1,000 megawatts of electricity, enough to

serve at least a million modern homes. The deadlines set by his bosses in Moscow and

Kiev required Brukhanov to work with superhuman dispatch: according to the

details of the Ninth Five-Year Plan, the first was due to come online in December

1975, with the second to follow before the end of 1979. Brukhanov quickly realized

that this timetable was impossible.

By the time the young director began work in Chernobyl in 1970, the Socialist

economic experiment was going into reverse. The USSR was buckling under the

strain of decades of central planning, fatuous bureaucracy, massive military spending,

and endemic corruption—the start of what would come to be called the Era of

Stagnation. Shortages and bottlenecks, theft and embezzlement blighted almost every

industry. Nuclear engineering was no exception. From the beginning, Brukhanov

lacked construction equipment. Key mechanical parts and building materials often

turned up late, or not at all, and those that did were often defective. Steel and

zirconium—essential for the miles of tubing and hundreds of fuel assemblies that

would be plumbed through the heart of the giant reactors—were both in short

supply; pipework and reinforced concrete intended for nuclear use often turned out

to be so poorly made it had to be thrown away. The quality of workmanship at al

levels of Soviet manufacturing was so poor that building projects throughout the

nation's power industry were forced to incorporate an extra stage known as

“preinstal ation overhaul.” Upon delivery from the factory, each piece of new

equipment—transformers, turbines, switching gear—was stripped down to the last

nut and bolt, checked for faults, repaired, and then reassembled according to the

original specifications, as it should have been in the first place. Only then could it be

safely instal ed. Such wasteful duplication of labor added months of delays and

mil ions of rubles in costs to any construction project.

Throughout late 1971 and early 1972, Brukhanov struggled with labor disputes

and infighting among his construction managers and faced steady reprimands from

his Communist Party bosses in Kiev. The workers complained about food shortages

and the lines at the site canteen; he had failed to provide cost estimates and design

documents; he missed deadlines and fell pathetically short of the monthly work

quotas dictated by Moscow. And still there was more: the new citizens of Pripyat

required a bakery, a hospital, a palace of culture, a shopping center. There were

hundreds of apartments to be built.

Finally, in July 1972, exhausted and disillusioned, Viktor Brukhanov drove to Kiev

for an appointment with his boss from the Ministry of Energy and Electrification. He

had been director of the Chernobyl Atomic Energy Station for less than three years,

and the plant had not yet emerged from the ground. But now he planned to resign.

Behind all the catastrophic failures of the USSR during the Era of Stagnation

—beneath the kleptocratic bungling, the nepotism, the surly inefficiencies, and the

ruinous waste of the planned economy—lay the monolithic power of the

Communist Party. The Party had originated as a single faction among those

grappling for power in Russia following the Revolution of 1917, ostensibly to

represent the will of the workers, but quickly establishing control of a single-party

state—intended to lead the proletariat toward “True Communism.”

Distinct from mere Socialism, True Communism was the Marxist utopia: “a classless society that contains limitless possibilities for human achievement,” an

egalitarian dream of self-government by the people. As revolution was supplanted by

political repression, the deadline for realizing this meritocratic Shangri-la was pushed

repeatedly off into the future. Yet the Party clung to its role enforcing the dictates of

Marxism-Leninism, ossifying into an ideological apparatus of full-time paid officials

—the apparatus—nominal y separate from the government but that in reality controlled decision-making at every level of society.

Decades later, the Party had established its own rigid hierarchy of personal patronage and held the power of appointment over an entire class of influential

positions, known collectively as the *nomenklatura*. There were also Party managers to

oversee every workshop, civil or military enterprise, industry, and ministry: the

apparatchiks, who formed a shadow bureaucracy of political functionaries

throughout the Soviet empire. While officially every one of the fifteen republics of

the USSR was run by its own Ministerial Council, led by a prime minister, in practice

it was the national leader of each republican Communist Party—the first secretary—

who was in control. Above them all, handing down directives from Moscow, sat

Leonid Brezhnev, granite-faced general secretary of the Communist Party of the

Soviet Union, chairman of the Politburo, and de facto ruler of 242 million people.

This institutionalized meddling proved confusing and counterproductive to the

smooth running of a modern state, but the Party always had the final word.

Party membership was not open to everyone. It required an exhaustive process of

candidacy and approval, the support of existing members, and the payment of regular

dues. By 1970, fewer than one in fifteen Soviet citizens had been admitted. But

membership brought perks and advantages available only to the elite, including access

to restricted stores and foreign journals, a separate class of medical care, and the

possibility of travel abroad. Above all, professional advancement in any kind of senior

role was difficult without a Party card, and exceptions were rare. By the time Viktor

Brukhanov joined in 1966, the Party was everywhere. In the workplace, he answered

to two masters: both his immediate managers and the committee of the local Communist Party. When he became director of a nuclear power station, it was no

different. He received directives from the Ministry of Energy in Moscow but was also

tyrannized by the demands of the regional Party committee in Kiev.

Although by the early seventies many in the Party still believed in the principles of

Marxism–Leninism, under the baleful gaze of Brezhnev and his clique of geriatric

cronies, ideology had become little more than window dressing. The mass purges and

the random executions of the three decades under Stalin were over, but across the

USSR, Party leaders and the heads of large enterprises—collective farms and tank

factories, power stations and hospitals—governed their staff by bullying and intimidation. These were the thuggish bureaucrats who, according to the novelist and

historian Piers Paul Read, “had the face of a truck driver but the hands of a pianist.”

The humiliation of enduring an expletive-spattered dressing-down delivered at

screaming pitch was a ritual repeated daily in offices everywhere. It engendered a top-

down culture of toadying yes-men who learned to anticipate the whims of their

superiors and agree with whatever they said, while threatening their own underlings.

When the boss put his own proposals to the vote, he could reasonably expect them to

be carried unanimously every time, a triumph of brute force over reason.

Advancement in many political, economic, and scientific careers was granted only

to those who repressed their personal opinions, avoided conflict, and displayed

unquestioning obedience to those above them. By the midseventies, this blind

conformism had smothered individual decision-making at all levels of the state and

Party machine, infecting not just the bureaucracy but technical and economic disciplines, too. Lies and deception were endemic to the system, trafficked in both

directions along the chain of management: those lower down passed up reports to

their superiors packed with falsified statistics and inflated estimates, of unmet goals

triumphantly reached, unfulfilled quotas heroically exceeded. To protect his own

position, at every stage, each manager relayed the lies upward or compounded them.

Seated at the top of a teetering pyramid of falsehood, poring over reams of figures

that had little basis in reality, were the economic mandarins of the State General

Planning Committee—Gosplan—in Moscow. The brain of the “command economy,” Gosplan managed the centralized distribution of resources throughout

the USSR, from toothbrushes to tractors, reinforced concrete to platform boots. Yet

the economists in Moscow had no reliable index of what was going on in the vast

empire they notionally maintained; the false accounting was so endemic that at one

point the KGB resorted to turning the cameras of its spy satellites onto Soviet

Uzbekistan in an attempt to gather accurate information about the state’s own cotton

harvest.

Shortages and apparently inexplicable gluts of goods and materials were part of the

grim routine of daily life, and shopping became a game of chance played with a string

avoska, or “what-if” bag, carried in the hope of stumbling upon a store recently

stocked with anything useful—whether sugar, toilet paper, or canned ratatouille from

Czechoslovakia. Eventually the supply problems of the centrally planned economy

became so chronic that crops rotted in the fields, and Soviet fishermen watched

catches putrefy in their nets, yet the shelves of the Union’s grocery stores remained

bare.

Soft spoken but sure of himself, Viktor Brukhanov was not like most Soviet managers. He was mild mannered and well liked by many of those beneath him. With

his prodigious memory and shrewd financial sense, his excellent grasp of many

technical aspects of his job—including chemistry and physics—he impressed his

superiors. And at first, he was confident enough in his opinions to openly disagree

with them. So when the pressures of the mammoth task he faced in Chernobyl

became too much for him, he simply decided to quit.

Yet when Brukhanov arrived in Kiev that day in July 1972, his Party-appointed

supervisor from the Energy Ministry took his letter of resignation, tore it up in front

of him, and told him to get back to work. After that, the young director recognized

that there was no escape. Whatever else his job might require, his most important task

was simply to obey the Party—and to implement their plan by any means he could.

The next month, construction workers poured the first cubic meter of concrete into

the foundations of the plant.

Thirteen years later, on November 7, 1985, Brukhanov stood silently on the reviewing stand in front of the new Pripyat Palace of Culture, where the windows

had been hung with hand-painted portraits of state and Party leaders. Power station

and construction workers paraded through the square below, carrying banners and

placards. And in speeches marking the anniversary of the Great October Revolution,

the director was hailed for his illustrious achievements: his successful fulfillment of

the Party's plans, his benevolent leadership of the city, and the power plant it served.

Brukhanov had now dedicated the prime of his life to the creation of an empire in

white reinforced concrete, encompassing a town of nearly fifty thousand people and

four giant 1,000-megawatt reactors. Construction was also well under way on two

more reactors, which were scheduled for completion within two years. When Units

Five and Six of the Chernobyl station came online in 1988, Brukhanov would preside

over the largest nuclear power complex on earth.

Under his direction, the Chernobyl plant—by then formally known as the V. I.

Lenin Nuclear power station—had become a prize posting for nuclear specialists

from all over the Soviet Union. Many of them came straight from MEPhI—the

Moscow Engineering and Physics Institute, the Soviet counterpart to MIT. The

USSR, hopelessly backward in developing computer technology, lacked simulators

with which to train its nuclear engineers, so the young engineers' work at Chernobyl

would be their first practical experience in atomic power.

To trumpet the wonders of the atomic town of Pripyat, the city council—the

ispolkom—had prepared a glossy book, filled with vivid color photographs of its

happy citizens at play. The average age of the population was twenty-six, and more

than a third of them were children. The young families had access to five schools,

three swimming pools, thirty-five playgrounds, and beaches on the sandy banks of

the river. The town planners had taken care to preserve the city's sylvan environment,

and each new apartment block was surrounded by trees. The buildings and open

spaces were decorated with sculptures and spectacular mosaics celebrating science

and technology. For all its modernity and sophistication, the city remained encircled

by wilderness, offering a sometimes enchanting proximity to nature. One summer

day, Brukhanov's wife, Valentina, watched as a pair of elk swam out of the Pripyat

and slouched up the beach before disappearing into the forest, apparently heedless of

the bathers gawping from the sand.

As an *atomgrad*, the city and everything in it—from the hospital to the fifteen

kindergartens—was considered an extension of the nuclear plant it served, financed

directly from Moscow by the Ministry of Energy. It existed in an economic bubble;

an oasis of plenty in a desert of shortages and deprivation. The food stores were better

stocked than those even in Kiev, with pork and veal, fresh cucumbers and tomatoes,

and more than five different types of sausage. In the Raduga—or Rainbow—

department store, Austrian-made dining sets and even French perfume were available

to shoppers, all without having to spend years on a waiting list. There was a cinema, a

music school, a beauty parlor, and a yacht club.

Pripyat was a small place: few of the buildings reached higher than ten stories, and

one could cross the whole city in twenty minutes. Everyone knew everyone else, and

there was little trade for the *militsia*—the policemen of the Ministry of Internal

Affairs—or the city's resident KGB chief, who had an office on the fifth floor of the

ispolkom. Trouble was confined mostly to petty vandalism and public drunkenness.

Each spring, the river gave up another grim harvest, as the thaw revealed the bodies of

drunks who had blundered through the ice and drowned in midwinter.

A Western eye may have been drawn to Pripyat's limitations: the yellowing grass

bristling between concrete paving slabs or the bleak uniformity of the multistory

buildings. But to men and women born in the sour hinterlands of the USSR's factory

cities, raised on the parched steppes of Kazakhstan, or among the penal colonies of

Siberia, the new *atomgrad* was a true workers' paradise. In home movies and

snapshots, the citizens of Pripyat captured one another not as drab victims of the

Socialist experiment but as carefree young people: kayaking, sailing, dancing, or

posing in new outfits; their children playing on a great steel elephant or a brightly

painted toy truck; cheerful optimists in the city of the future.

By the end of December 1985, Viktor and Valentina Brukhanov could look back on a

year of triumphs and milestones at home and at work. In August they saw their

daughter married and Lilia and her new husband resume their studies at the medical

institute in Kiev; soon after, Lilia became pregnant with their first child. In

December, the couple celebrated Viktor's fiftieth birthday and their own silver

wedding anniversary, with parties in their big corner apartment overlooking Pripyat's

main square.

At the same time, Viktor was honored with an invitation to Moscow to join the

delegation attending the impending 27th Congress of the Communist Party of the

Soviet Union, an important stamp of political approval from above. The Congress

promised, too, to be a significant event for the USSR as a whole. It would be the first

over which the new general secretary, Mikhail Gorbachev, would preside as leader of

the Soviet Union.

Gorbachev had assumed power in March 1985, ending the long succession of

zombie apparatchiks whose declining health, drunkenness, and senility had been

concealed from the public by squadrons of increasingly desperate minders. At fifty-

four, Gorbachev seemed young and dynamic and found an enthusiastic audience in

the West. With political opinions formed during the 1960s, he was also the first

general secretary to exploit the power of television. Speaking unselfconsciously in his

southern accent, plunging into crowds on apparently spontaneous walkabouts finely

orchestrated by the KGB, Gorbachev appeared constantly on the nation's flagship

TV news show, *Vremya*, watched every night by nearly two hundred million people.

He announced plans for economic reorganization—perestroika—and, at the climax

of the Party congress in March 1986, talked of the need for glasnost, or open

government. A dedicated Socialist, Gorbachev believed that the USSR had lost its

way but could be led to the utopia of True Communism by returning to the

founding principles of Lenin. It would be a long road. The economy was staggering

under the financial burden of the Cold War. Soviet troops were mired in

Afghanistan, and in 1983 US president Ronald Reagan had extended the battle into

space with the Strategic Defense Initiative, the “Star Wars” program. Annihilation in

a nuclear strike seemed as close as ever. And at home, the monolithic old ways—the

strangling bureaucracy and corruption of the Era of Stagnation—lingered on.

In the sixteen years that he'd spent building four nuclear reactors and an entire city

on an isolated stretch of marshland, Viktor Brukhanov had received a long education

in the realities of the system. Hammered on the anvil of the Party, made pliant by the

privileges of rank, the well-informed and opinionated young specialist had been

transformed into an obedient tool of the *nomenklatura*. He had met his targets and

fulfilled the plan and won himself and his men orders of merit and pay bonuses for

beating deadlines and exceeding labor quotas. But, like all successful Soviet managers,

to do so, Brukhanov had learned how to be expedient and bend limited resources to

meet an endless list of unrealistic goals. He had to cut corners, cook the books, and

fudge regulations.

When the building materials specified by the architects of the Chernobyl station

had proved unavailable, Brukhanov was forced to improvise: the plans called for

fireproof cables, but when none could be found, the builders simply did the best they

could.

When the Ministry of Energy in Moscow learned that the roof of the plant's turbine hall had been covered with highly flammable bitumen, they ordered him to

replace it. But the flame-retardant material specified for reroofing the structure—fifty

meters wide and almost a kilometer long—was not even being manufactured in the

USSR, so the Ministry granted him an exception, and the bitumen remained. When

the district Party secretary instructed him to build an Olympic-length swimming pool

in Pripyat, Brukhanov tried to object: such facilities were common only in Soviet

cities of more than a million inhabitants. But the secretary insisted: "Go build it!" he

said, and Brukhanov obeyed. He found the extra funds to do so by fiddling the city

expenses to hoodwink the state bank.

And as the fourth and most advanced reactor of the Chernobyl plant approached

completion, a time-consuming safety test on the unit turbines remained outstanding.

Brukhanov quietly postponed it, and so met Moscow's deadline for completion on

the last day of December 1983.