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THE DAY OF  
RESURRECTION

SAKYO KOMATSU



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RESURRECTION

SAKYO KOMATSU

TRANSLATED BY DANIEL HUDDLESTON

## VIRUS: THE DAY OF RESURRECTION

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**To K.T.**, and to  
everyone who  
has to battle  
with illness.



# I N T R O D U C T I O N

PEOPLE POWER  
by Miyuki Miyabe

In late September, I suddenly developed a high fever due to a cold and found myself bedridden.

I'd been feeling perfectly fine the day before, but a little while after I'd gotten up, I suddenly came down with this terrible fever. I shut myself up in my room, and I'd put on a gauze mask just to go out into the hall. I had my meals left on a tray outside my door, and my family was thoroughly engaged in gargling, handwashing, and disinfecting things with alcohol.

You may think that doing all that was a little much for just a cold. Well, we were halfway laughing at ourselves as we did it, but we were also halfway serious as well. This is because we have a pretty scary memory from about twenty years ago when influenza hit our family, and we all went down like dominoes.

I say "family," but in reality, it was four households, including mine, which consisted of only me. But we all lived in the same neighborhood, and because the first one to show symptoms was my three-year-old niece, we were all worried. As we took turns looking in on her, the infection spread. The number of patients grew, and at last we all moved over to my parents' house, since it would be easier on everyone and more comforting as well if we were all under one roof. The result was a pitiful state indeed: you could open that door over there and find two people lying in bed, and open up the sliding paper door over here to find three others lying

down. Every time my elder sister and I went wobbling out of the house, supporting each other as we made a food and ice run, we would tremblingly murmur the same thing to one another:

“This is *Virus*...”

People power—the highly advanced and flexible software that runs society—is destroyed by an unknown virus. As a result, the fragile hardware that is society steadily, irreversibly collapses. *Virus*, which depicts this state of affairs, was a truly frightening novel for the fifteen-year-old high school girl I was when I first read it.

In the story, there’s one scene where a woman (one of the major characters of the first half) goes out of her apartment in a disease-weakened state dragging a bucket along to draw water from a nearby pool. Both the elevator and the running water have stopped at her apartment. Even now, that bit still flits through the back of my mind from time to time—with nightmarish detail and with such clarity I can almost smell it—like reliving a trauma.

But on the other hand, in order to operate the hardware that is society, the software of people power is essential. If society has even something as simple as electricity, it’s not like it’s just merrily circulating all by itself; it’s the work of each and every person that’s driving it along. You can’t have a society without people. This is also something that my fifteen-year-old self learned through this novel.

This is why when people get together, they can build a society and make it run. Even in the harsh, cruel environment of Antarctica.

It taught one less-than-outstanding schoolgirl what it means to live in society. At the same time, it also gave that girl—and then, by extension, her family—a shared reference point that still hasn’t faded even after all these years, by which the words “This is *Virus*...” are enough to say it all.

That’s how close it gets to the reader’s heart and how rooted in reality, how prophetic, and how timeless it is. It never gets old.

This is the kind of book I want to call “literature.” At least, the literature I’ve always admired is this kind of book.

Mr. Komatsu, thank you very much. May you rest in peace.

—from “Tsuitou: Komatsu Sakyo” (published by Kawade Shobo Shinsha in Japan)

Miyuki Miyabe's first novel was published in 1987, and since that time she has become one of Japan's most popular and best-selling authors. Miyabe's 2007 novel *Brave Story* won The Batchelder Award for best children's book in translation from the American Library Association. *ICO: Castle in the Mist* is Miyabe's seventh book to be translated into English. Her other titles include *The Book of Heroes* and the mysteries *All She Was Worth* and *The Sleeping Dragon*.



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# P R O L O G U E

MARCH, 1973

"Blow!" ordered Captain McCloud.

"Da, Capitan..." said Petty Officer Ivan Mihailovich. Mihailovich, red of hair and large of nose, nostrils wide like those of some Chinese lion, had made a conscious choice to answer in Russian. He smirked. It was his way of snubbing his strict American captain, a man hard in both mind and body.

The burly captain, however, ignored the words of the Slav, so the petty officer briskly opened the air valve, releasing just a small amount of compressed air into the main ballast tank. In the parlance of his trade, he had "given it a tap." A faint shudder ran through the floor.

"Separation," said Mihailovich, this time in strongly accented English. "Depth 850...830...810...800..."

"No obstacles ahead of us," reported the navigator, watching both the undersea radar and the undersea video monitor.

"Seafloor plateau at forty degrees. Seven miles to the continental shelf."

"Maintain present course and take us in slow," the captain said, furrowing his brows until they bristled. "Raise rudder five degrees. Ascend to fifty meters."

The rudder control of *Nereid*, like that of all nuclear submarines in its class, looked just like the control stick on an airplane. By gently pushing or pulling on

the stick's fan-shaped grip, Orrin—*Nereid's* helmsman—could control the directional rudder and work the diving planes that jutted out from bow, stern, and conning tower.

*Might as well be flying a bloody passenger plane!* Orrin was thinking. Such thoughts were never far from the helmsman's mind. *Just once in my life, I wanna take this six-ton behemoth into a somersault!*

As Orrin kept his eyes on the gyro-horizon, the pelorus, and the depth gauge, he pulled the stick back slightly toward himself. Maintaining its speed of eight knots, *Nereid* gradually began to raise its nose. The floor tilted slightly forward and backward before coming to a perfectly level stop. Apart from the faint engine vibrations transmitted through the floor, the space within the submarine was filled with silence.

Shortly, however, a shudder ran through the entire vessel and a slight vertical pitching began to rattle the ship. Here the North Equatorial Current—the Black Stream—collided against the continental shelf, creating an upward flow of water.

"Depth fifty meters..." Orrin said.

"Hold current depth," said McCloud. "Accelerate to one half of full speed."

The vibrations from the engine grew more powerful, but the pitching was much less pronounced now. *Nereid* raced toward the top of the continental shelf at an undersea velocity of fifteen knots. While moving at that velocity, no one in the central control room would speak unnecessarily, but the redheaded Nizhnij Novgorod-born Soviet—no, *Slav*, since there no longer was a nation called the Soviet Union—was whistling a low, dry rendition of "Song of the Fatherland."

*The endless, boundless land...*

*The Fatherland, my Fatherland...*

But Petty Officer Mihailovich's "fatherland" no longer existed. And it wasn't just Mihailovich; nobody had a "fatherland" anymore. Captain McCloud was no longer an officer of the US Navy. Navigator Vankirk's "fatherland" of the Netherlands was gone, and the nationality of Orrin the helmsman was no longer British.

*The bells of Moscow ring high in the east and west...*

*Sounding the peace of our eternal nation...*

"We've entered the channel," said the navigator. "One mile to shore."

"Engine stop," the captain said into his microphone. "Ascend to periscope depth and hold position. Get the snorkel ready, and prepare to activate the air

sampler. And after that..." Here the captain paused to think for a moment. "...tell Yoshizumi to get up here."



*Nereid* stopped at periscope depth and lowered sea anchors from both stem and stern. When necessary, it was possible to maintain the ship's equilibrium by extending "arms" from the left and right sides of the center of gravity and lowering balancer weights from them. Today, however, the waves were calm enough that there wasn't any need.

Whenever the snorkel, with its porcine nose, was raised to the surface, a strange tension always enveloped the interior of the submarine—though it was not the tension of being on the lookout for the antisubmarine radar of some enemy. Enemies who could use radar to find them—who could sink them using depth charges and antisubmarine missiles—no longer existed anywhere.

Instead, a monstrous, pitiless, and ruthless enemy—an "enemy" that far transcended the common sense of the term—pervaded the realm just beyond the green, smooth surface of the sea.

"Yoshizumi here."

A slender young man had entered the control room. He walked up and stood beside the desk. His tanned face still bore pale marks from the glasses he had been wearing out in the snow. Captain McCloud turned and glanced back at the man's face—flat overall with cheekbones protruding slightly, well-balanced, fresh and youthful all the same.

*Why do these Japanese still look like kids in the face even when they get past thirty?*

"We are presently in the Uraga Channel at the mouth of Tokyo Bay," said McCloud, turning his back on Yoshizumi to bend over the chart projector. "The nearest land is here, called...er..."

"Kannonzaki," Yoshizumi supplied after a glance at the map. "On the easternmost tip of the Miura Peninsula. There used to be a lighthouse."

"It'll take about two hours to complete the atmospheric analysis," the captain said, back still turned. "In the meantime, I'm sending up our inflatable 'eye.' You want to see your hometown?"

"You'd send up the balloon just for me?" Yoshizumi asked softly. "It's very expensive, isn't it?"

"I don't mind," said Captain McCloud without expression. "We've been using it all over the place. We'll probably have to junk it before we cross the Tropic of Capricorn anyway."

They turned on the compressor. One meter above the surface, the snorkel began audibly sucking in air, though not for the purpose of bringing in the ozone-tinged fragrance of a crisp, refreshing sea breeze. Since entering the northern hemisphere, the oxygen inside the submarine had been provided almost entirely by the electrolysis of water, with carbon dioxide being eliminated by air cleaners. Part of the nitrogen had been replaced by helium. As for the pipeline through which the snorkel took in air, it was sealed off so tightly as to make the crewmen who had sealed it seem paranoid. Nearly all the connecting sections were welded shut, and places where flanges were attached were welded shut from the outside and made completely airtight via a molecular sealant. Not even a single molecule of air could get into the rest of the ship. Taking into account past history, they had had no choice but to take such precautions when they first put out to sea. This was because if by some unlikely chance the worst should happen, the captain would on his own authority have to sink the ship and all its crew into the deepest depths of the ocean.

The air obtained by their hermetically sealed pump was forced into a sampling device consisting of layer after layer of specialized filtration disks. Within each layer, a small piece of impermeable colloid film was attached. By remote control, these could be inserted into a small electron microscope that was installed inside the system.

While the atmospheric analysis was beginning, a float resembling a sea turtle trailed cable as it rose to the surface of the ocean, seven meters up from the back of *Nereid*. The seas above were calm. On the color monitor in the control room, splashes of water quickly gave way to the piercing clarity of a blue sky in early spring. Against that backdrop, a shiny, yellowish-brown round object rose and quickly receded from the camera. It was a small balloon used to measure the force of the wind. At an altitude of two hundred meters, the skies were clear and blue, the wind speed four meters per second. Visibility was excellent.

The captain withdrew from the front of the video monitor and tapped Yoshizumi on the shoulder. Yoshizumi took the captain's place in front of the screen and watched intently as the communications officer started up both the video recorder and the 16mm camera. At last, he flipped the blue switch.

When he threw the switch, a helium canister opened on top of the float. The

view was shaken fiercely for a moment, and then the camera switched over to a horizontal view. As the inflated balloon rose higher and higher, the field of view quickly swung upward from the crests of the waves, rapidly sliding away from the gentle sea green of the water's surface to face the dark land that lay beyond.

When the rocking image on the view screen reached an altitude of two hundred meters, the monitor showed the city of Tokyo, spread out wide across the distant northern horizon as a grayish, irregular unevenness.

At three hundred meters, the balloon's tether had stretched as far as it could go. The camera switched over to an ultra telephoto lens, and Marine City jumped into view, looking like a line of white bricks directly in front of the camera. One closed window flashed brightly as its glass caught a ray of sunlight. Another forty-five kilometers of sea farther on lay the gargantuan corpse of the Greater Tokyo area, a once-cosmopolitan megalopolis that had at its height sheltered twelve million souls.

Tokyo Tower, aging yet unwilling to fall, rose high above the city like a spearhead piercing the sky. Crouched at its feet, the forest of Zoujouji Temple was as deep and black as ever, though not a single bird flew above it. In the skies over Omori, not a single airplane could be seen on final approach. Motionless cars dotted the pallid curves of the highways.

"Still too far..." the communications officer said sympathetically to Yoshizumi, who was leaning over the display now, engrossed in the images there. "I've set the focal length to two thousand millimeters. That's the maximum magnification. Let's look at someplace closer."

The viewpoint zoomed out and then began panning to the right. Yoshizumi saw the sparkle and flash of the rolling Rokugou River. On the rusted tracks of the Tokaido line lay the overturned remains of several trains, including long passenger cars from the super-express bullet train. Those beautiful, egg-white cars were now gray and still, so changed from their former selves that it was hard for Yoshizumi to even bear the sight of them. The roads and avenues throughout the area were covered in grass so thick that they could hardly be called roads at all.

*Come to think of it, the plants haven't died even here, Yoshizumi thought. Plankton is living just a few centimeters beneath the surface of the sea. But even though the little fishes that eat it are still alive as well, the sea birds that floated on the surface are almost extinct. I wonder—what about the small fauna that live near tide lines?*

Toward the brilliant green of the Tanzawa Mountains, something clear, sharp, and white rose unexpectedly into the frame. As soon as he saw it, Yoshizumi felt as though his chest were being squeezed in a vise. As though reading his mind, the communications officer tapped the key controlling camera rotation, stopping its horizontal pan.

The ageless outline of Mount Fuji rose up against a backdrop of deep Prussian blue, a few light brushstrokes of cloud painted into its background. The snow was beginning to melt just slightly up near the seventh station, beautifully, magnificently highlighting the ridgelines that draped down from the summit like folds in the train of some giant's dress. For the first time, Yoshizumi felt something warm rising up in his chest. *Fuji...the green mountains and rivers of Japan...so beautiful, so rich in their delicate, pleated ridges and shades of color, so peaceful, so dear to the hearts of its people...but who on earth did this beautiful, ancient land even belong to now?*

Yoshizumi felt his eyes starting to burn with tears, so he gave a signal to the communications officer, who resumed the rightward panning of the camera. Once he had finished, he switched over to a bird's-eye view.

The image on the screen shook jerkily, and then a street covered in trees and grass jumped into view, terribly close.

*Yokosuka?* Yoshizumi wondered, noticing a boat docked by a pier. But—no. It was a street in Uraga. An imaginary line connecting Kannonzaki Cape with Futtsu-misaki Cape on the opposing Bousou Peninsula would have *Nereid* right at its midpoint.

"U...ra...ga...Dockyard" McCloud said softly, reading letters from the side of the dockyard in the screen.

The captain muttered the name again and again, as if trying to remember where he had heard it before. "Uraga!" he said suddenly. "Where Commodore Perry arrived! He came here knocking on Japan's door around a hundred and fifty years ago..."

The camera's focal length extended to two thousand millimeters, and the magnification zoomed all the way in. A street filled the seventeen-inch screen. Viewed from straight above, it was easy to make out the details.

Tiled roofs. White-walled Western-style houses. Roofing tiles broken here and there. In some places, the grass had grown a couple of feet high. Most of the houses' doors and windows were closed, though dark, empty openings could also be seen

here and there. On telephone poles, one could see faded signs advertising pawn shops. In the street, grass grew from broken spots in the asphalt, and cars that had turned to rusted, reddened scrap lay where they had crashed into fences and telephone poles, or simply sat where they had been abandoned in the middle of the road.

Only the sun shone cheerfully, warmly, mockingly, above the ruined street, pouring down radiance like warm bathwater. The yards and vacant lots were wild and overgrown, filled with spring flowers in bloom. At one corner of a four-way intersection, Yoshizumi noticed a small tricycle, dark red with rust, left untouched where it had stopped. His chest constricted involuntarily—beside the tricycle was something that looked like a white scrap of cloth, lying flat against the earth. Straining his eyes, he finally realized that he was looking at bleached bones wearing tattered clothes. The legs were bent and the arms stretched forward, as though the skeleton were trying to crawl northward. Once Yoshizumi recognized the skeleton for what it was, it became clear that there were bleached bones scattered everywhere: collapsed beside a house's front door, half stuck in a drainage ditch, lying in heaps at an intersection. The upper half of one skeleton was leaning out of a second-story window, its head long since fallen off. The bones had been exposed to wind and rain, and no animals had carried them away, since the dogs and cats had been reduced to bleached skeletons as well. What had until two and a half years ago been tens of thousands of busy residents in a lively old harbor town were now motionless white bones shining brightly in the sunlight of an early spring day, lying silent and voiceless.

Yoshizumi caught a glimpse of something small and yellow moving. A butterfly, fluttering among the bones.

*Enough of this!* Yoshizumi screamed inside. *Enough! I've seen too much already! But wait a minute—a butterfly! Insects are...*

The comm buzzer sounded, and the captain answered the call.

"We're finished," said the voice of Professor de la Tour, the man in charge of atmospheric analysis. "The results are in."

"And?" the captain asked with a quick glance in Yoshizumi's direction.

"It is...as expected," the voice of the professor answered mechanically. "Around 2.8 delta per cubic centimeter, I suppose. Similar enough to previous samples that there's no need to grow a culture. It is alive and kicking."

"Well, then, I guess that's that," said the captain. "Lower the snorkel and bring in the balloon."

"Captain," de la Tour said hastily. "I wonder if you might permit me to carry out an experiment?"

"What kind of experiment?"

"I want to expose a sample to radiation." There was a supplicating tone in the professor's disembodied voice. "Using an electromagnetic manipulator, we can cover a sample with insulation and then insert it into a small steel capsule. Then weld it shut and take it out."

"What's inside would die when it passed through the heating hole, wouldn't it?" McCloud said.

"I think it would be all right. Five hundred degrees inside the heater is not too much; I'll just heat it for a shorter time than usual."

"Aren't you the one who wrote the regulations for handling samples?"

"Captain, please listen to me. I'll use the manipulator to burn the capsule's outer surface with a blowtorch. Surface heating is effective, and it won't make the inside too hot."

"Well, what will you do with it, then?"

"I want to jam it inside the reactor somewhere." The professor's voice was brimming with scholarly passion now. "Near the furnace—or not far from the cooling system would be fine. There are alpha particles, beta particles, neutrons, and gamma waves there. We'll measure the strength of each of these, and—"

"I'm sorry, Professor," the captain said, his voice curt. "Surely you're aware that the engines on nuclear vessels come with a two-year seal. As a general rule, even the engine room is off-limits, never mind the container."

"I asked the safety engineer—"

"Do it when we get home. They have a nuclear reactor at the station, you know. Not one for university experiments, true. It's not in a pool and it doesn't have a special exit for neutrons..."

"Captain McCloud, please—"

"Professor, I have a duty to bring everyone back from this place alive. Please leave your sample as-is inside the quarantine system. I will not allow your capsule to be brought into the ship." When he had finished talking, McCloud shook his head and looked around the room.

"Take us into the bay slowly and get some pictures of Tokyo through the telescope," McCloud said, placing stress on the city's middle phoneme, as Westerners often did. "After that, we head home."



Though the images on the screen had disappeared, Yoshizumi was still standing paralyzed before the monitor.

Keeping an eye on him, Captain McCloud stood in front of the odometer and cleared his throat. "Eighty-five thousand kilometers already, eh?" he muttered. "By the time we get back to the station, it'll be a hundred thousand and about time for a refueling. I wonder if there are still any facilities for recharging left."



Why had it happened? And who was responsible?

What savage presence had visited such a disaster on this lovely planet? *Nereid* rushed earnestly on and on, keeping a depth of fifty meters and a speed of twenty-eight knots, headed southward against an audible flow of dark brine—a huge, lonely whale swimming beneath the endless undulations of Poseidon's rippling back. Within the hearts of the crew inside, a terrible anguish of spirit had reawakened—an anguish that until then had been faded and yellowed by the passage of four long years, hidden under a film of resignation so thick that even the warmth of its dying embers should have no longer been detectable to the crew.

Who was responsible? And why had it happened?

The answers were in a sense already known. They could be faintly perceived amid the ripples of the electromagnetic waves that had rebounded across the sky, bent across the land, and shaken the atmosphere in those days—the waves that had carried the countless shouts and screams of a world on the brink of extinction—the screams of the dying that had spread from one to another and, at last, to all the continents. In those days, when the crew could feel nothing except their hearts being torn asunder, when they could do nothing except gnash their teeth at thoughts of blood relatives expiring in places beyond their reach—even then, they already had a broad grasp of what had happened.

Then, after the last of those voices that could have answered their questions went silent from all five hundred fifty million square kilometers of the earth's surface, the Hadean cries of those who remained had risen once more, burning with anger, analyzing, analogizing. The destruction had come on them rather quietly, without any sign or warning, descending upon a bustling generation full of noise and hope for a brighter, more prosperous future.

*Without even a sound.*

It was true. The flashes of light, the white-hot pillars of flame raining down from the heavens that humanity had quaked in fear of, that they had cried out against so loudly, that in the end—in the name of reason and the love of their fellow man—they had managed to hold at bay, were nothing at all like the destruction that finally came. It had been readied without the public's knowledge, it had appeared without warning, and by the time its danger was understood, it was too late to do anything about it. A young giant called Humanity had at last been ready to put behind him a troubled youth filled with unimaginable catastrophe and, gazing long and calm into a higher, more distant future, to take his first step forward as an adult. Yet with that very first step, he had fallen flat on his face. And there he lay. It hadn't been such an unlikely thing, really. Viewed against the endless history of the universe, it was simply a matter of some intelligent life-forms springing up on the third planet of a certain solar system and meeting with premature death no sooner than they had appeared. Such patterns existed even in the everyday lives of humans. After all, a young man can be wise, strong, and healthy, full of hope and prospects for the future, and still meet with unexpected disaster, dying the next day, or even in the next instant. The boundless talent within him—his limitless potential and promise—is no use whatsoever in preventing such misfortunes. Why did failed species, such as the dinosaurs of the Mesozoic period, disappear so *suddenly*? After they were destroyed, did their great power have any meaning? Their record ends on a footnote within the history of the universe, in the history of this planet.

Which would a later age judge to have been truly superior: that thick, long branch of Mesozoic *Reptilia* that had given birth to Tyrannosaurus Rex and Apatosaurus, or a branch of intelligent primates with somewhat advanced cerebralization—viviparous mammals that had been building a quasi-advanced, insectlike way of life based on group-oriented division of labor from the late Quaternary period and on into the Cenozoic era?

Such considerations held little interest for the survivors, however, whose crushing anguish continued without end. *Why* had something like this happened? *How*? They realized the vanity of asking. What could come of knowing the cause after it had already happened? Those who were dead would not come back. And yet still they continued to seek out the source of the disaster. Peering at an indistinct outline drawn of guesswork, it felt like they could catch a fleeting glimpse of it. All men die, of course, and the times and extents of disasters cannot be predicted.

Humans sought a cause all the more, however, even after the end of everything—by that time more out of spite than reason. But humanity was the only form of life that ever sought reasons for death. The dead could go to their appointed places at the end of their natural life spans. If they were destroyed by a cometary impact, a sudden change in the land, or even in the nature of the universe itself, well...if something like that happened, it was all right too. But in the case of cometary impacts...in the case of simple old age...death was *caused by something*, wasn't it?

So *who* had caused this disaster? Some solitary madman? Had the very organization of human society been responsible? Had it been caused by someone's mistake? It was already known that somebody and something caused it. It was even known that that "somebody" referred to several—or several hundred—specific individuals...that that "something" was an agent of the political landscape of those times—or rather of the twentieth century. But beyond that, everything faded into the fog of destruction. Which was exactly why people went on seeking the names of those responsible.

Why had it happened? And who was responsible?



Poseidon's beloved daughter earnestly continued in her course southward, ever southward, through swimming curtains of fish, crossing one latitudinal line after another. The North Star had descended into the waters at her back, and rising up ahead of her were the stars of the Southern Cross. In her straightforward progression, however, she never raised her periscope to check those stars, instead relying on compass and odometer to keep her bow pointed southward.

At last the dark blue water grew clearer, and the midday sun spilled its vertical rays down onto white sandy seafloor, revealing in the bow's camera eye vistas of a tropical sea—forests of dazzling coral where brilliantly hued fish danced like butterflies. Volcanic islands jutted up from the seafloor, upon which rested masses of coral and swaying seaweed, and—that's right! There used to be people up there—cheerful people with bodies that shone like bronze. They had lived in the dark green of tropical islands...among shadows of deep purple cast by palm fronds onto the white sands...singing of their joy for the sea's bounty, for the goodness of the sun from generation to generation—singing out in answer to the roar of the crashing tide, unchanged since ancient times. Within silvery-white

rings blocking the fierce waves of the dark open sea, ultramarine water must be brimming, as blue as if turquoise had been dissolved in it. The strong rays of direct sunlight must be nearly blinding on the blue coral and white foam of the surf that gnawed against the atoll... But now, there was no way to get even a fleeting glimpse of what it must look like up there. Smiling maidens of the southern seas, their glowing amber skin clothed in primary colors... large, sweetly fragrant flowers thrust into hair as black as lacquer... teeth so white they had seemed to sparkle... coal-black eyes...

They had crossed the equator without realizing it. The display on the ship-board monitors had indicated their crossing, but in the gloomy stares of the crewmen, not a single shadow had lifted, and in the end no one even suggested holding one of the cheerful equator-crossing parties that had been all but mandatory until a few years ago. As *Nereid* entered the southern latitudes it turned its bow slightly toward the southeast, then continued on again. Already, there was no work left for which they should surface. The captain stayed shut up in his cabin, spending day after day absorbed in the Bible. The ship had been switched over to automatic rudder and was now continually feeling its way forward completely free of human assistance, measuring the depth of the seafloor with an ultrasound depth finder and using undersea radar and sonar to avoid reefs and guyots. Within a steel-plated pressure vessel ten inches thick, uranium fuel rods quietly continued to radiate heat, and contra-rotating propellers at the stern whirled on and on. The bright, air-conditioned interior was like a graveyard, filled with gloomy air. All of the crew avoided looking at one another's faces, spoke seldom, and busied themselves with reading and contemplation. Nobody reached for the records, played so many times that everyone was sick of them, and the canasta and mah-jongg tables in the recreation room had acquired a faint coating of dust. Only the cold, clear cracks of billiard balls resounded through the hallways on occasion, when one of the engineering crew went to play alone during his off hours.

As they lay in their assigned bunks, experiencing neither day nor night, listening intently to the faint sound of water swishing past the triple-partitioned bulkhead, it began to feel as if at some point this six-thousand-ton submarine had become just like the *Bateau Ivre*, having no destination at all, merely drifting along on the currents of the sea.

*...dispersant gouvernail et grappin.*

Yoshizumi, however, had heard from the communications officer that such gloomy return voyages were typical of all survey missions. Each year, they were visited by the sights of those grassy, decaying graveyards, and afterward returned to a harsh and unforgiving land. What kind of cheer could be expected in such circumstances?

Within this giant steel tube that knew neither day nor night, Yoshizumi was collating the results of his investigations into irregular shifts in geomagnetism, geoelectric fields, and gravity—anomalies concentrated on the seafloor off the Pacific coast of North America. He had first started this project after the ship encountered a rather powerful undersea earthquake in waters off what had once been Anchorage. When he had lowered his instruments into the sea in order to test a theory of his, he had been shocked by the results. Since then, he had made corrections for the electromagnetic deviation caused by *Nereid's* hull and attached remote-controlled sensors he had cobbled together himself to the bottom of the ship. Afterward, he had asked the captain to have the ship run a considerable distance along the Pacific coast of North America.

Despite the fact that the measurements were quite rough, he was logging geomagnetic and gravitational fluctuations of surprising magnitude on his charts. Even when compared against the measurements that Professor Kasty of Palermo University had made on last year's survey mission—using less precise instruments and simply taking measurements at rough points—the fluctuations were still too great. Once they had gone as far south as California, they had turned around and headed back toward Alaskan waters. In barely a week's time, the breadth of the fluctuations at the first observation point had become even greater.

As much as was possible, Yoshizumi tried to organize the results of his observations and do a number of preparatory projects while still at sea. As for the rest, he would have to use the computers at headquarters after they returned to the station; there was no way he could do it by hand. Yet even by simply collating the data, he could see a blurry outline of the thing these fluctuations were pointing to. He had grown just a little anxious at the thought, but eventually the pointlessness of such worry had dragged him back down. Even if such a thing were to occur, there was nobody left to bear the brunt of the effects...

Between his periods of arranging data and calculating numbers, he lay in his bunk as visions of his former homeland swam behind his eyelids, and he sank into a hot, languid anger and inexpressible sadness. He could see the lively, cheerful

atmosphere of his going-away party from several years ago and superimposed on top of it the ruined corpse of his motherland as he had seen it just a few days ago. It didn't look as if there was going to be any way to separate the two...

When *Nereid* was in Tokyo Bay, Yoshizumi had gotten permission to put on an aqualung and go outside into the water. However, this indulgence had been granted only on the condition that Vankirk accompany him. There had been no particular observations he and Vankirk needed to make; that little excursion had been allowed purely out of affection on the part of the captain. "The captain *likes* you," Vankirk had said. "You'd better watch out!"

The water in Tokyo Bay had been clear. A great hush hung over deep black silt that lay undisturbed on the bottom. Countless schools of fish—when had they started to return?—swam all around, and cold, fresh water poured in from the mouth of the Sumida River. It was if Tokyo Bay had somehow recovered a vestige of its older days, when its name had been Edo Bay. All that bore witness to what had once been Greater Tokyo, however, were the many sediment-covered wrecks of barges and tugboats and the giant cylindrical pillars that supported Marine City's bristling forest of towers, which were built on the sea across from Harumi Wharf on the outskirts of Chuuou Ward. Innumerable white bones were scattered across the inlet of the Arakawa drainage overflow, buried in reddish clay and resembling shards of broken porcelain. Near New Tokyo Harbor, the bottom of a large boat was visible overhead, its underside thick with barnacles casting countless long, black, ovoid shadows across it. Its screw and rudder were covered with slimy sea algae, and tiny crustaceans moved to and fro like flecks of dust. A large school of both large and small fish gathered to hunt them. Yoshizumi watched as a black sea bream more than a foot in length swam past and suddenly remembered an uncle of his who had loved fishing.

*He would've wept for joy if he'd dropped a line off the Harumi cliffs and pulled up a one-footer. No, stop it. That's something I shouldn't be thinking about.*

Behind his swimming goggles, Yoshizumi blinked his eyes often.

In the long shallows near Shinagawa, Yoshizumi went as close to shore as the depth of the water would permit. Eventually, it became impossible to stand, so placing his hands in the sticky mud, he crawled forward through the water.

*Sticking your head up out of the water is forbidden.*

The doctors said it was safe underwater as long as you kept to a minimum depth of fifty centimeters. However, Yoshizumi had already crawled to a place

where the surface was only eight centimeters above him. Vankirk, who had crawled up on his stomach in the same manner, grabbed his arm firmly. Yoshizumi waved a hand, signaling that he understood, and turned over to look straight up, resting his air tank on the muddy bottom.

Through his goggles, just beyond his eyes and nose, there was a drifting, wavering ceiling of silver. The bubbles made *glub-glub* noises as they ascended toward that ceiling. Just above that dull silver membrane, overflowing with light, was the air of spring. A warm breeze drifted across the lazily undulating surface of the sea, carrying its fragrance toward a land beyond that lay covered in young shoots of light yellow-green. If he had crawled through the mud just a little farther—no, if he had just stood up straight where he was and broken through to the surface—he could have gone back to the world where he had once lived, that world that had once been his *own*, of which he had once been a part. He had once shared bonds with several hundred acquaintances and a hundred million countrymen—yet now that thin silver membrane separated him from that world. Forever? Impossible! But how long was this going to go on?

As he lay in the cold, sticky mud of the seabed, he thought of the world spreading out beyond that surface. A world filled with people...overflowing with kindness and bustle and good cheer...that whirlwind of pleasures that he had handled so clumsily. He thought of a hundred million friendly faces and most especially of his elderly mother's bleached bones, probably lying in that old house with the big roof where he had been born and raised. His mother—had she been able to go without suffering? He thought of his timid but kind elder brother's bones and those of his sister-in-law...of the small, thin bones of his nephew...And then he thought of a certain woman's bones—lost amid ten million bleached skeletons, lying somewhere in this unkempt graveyard called Greater Metropolitan Tokyo.

Tears overflowed inside his goggles. Wouldn't it bring him far greater peace, he wondered, just to stand up now and go walk among the bones, among that great multitude of skeletons that had once been his countrymen, and become one of them? Wouldn't that be so much easier than going back to the sanitized air of that six-thousand-ton sewage pipe? Vankirk tugged on his arm, indicating that it was time to go back to the ship. They departed as they had come, crawling on all fours, making for deeper water. Again, the thought had begun to gnaw at Yoshizumi's heart:

*Why in the world? Why did such a thing have to happen?*



East of the Tonga Trench, *Nereid* bid farewell to tropical waters and continued on ever southward through the southern hemisphere. In the waters near New Zealand, she raised her periscope briefly, but then continued running under the sea just as before. After a week, *Nereid* was shaken by a strong upward shock wave and for a while afterward was rattled about by a wide, undulating front where cold and warm water mixed. Navigator Vankirk placed his hands on the auto-adjuster for differential current. They had entered into the cold, fierce Cape Horn Current.

Not long after, the ship dove to a depth of two hundred meters. This was to avoid the undersides of icebergs. The watch was increased to two men on four shifts. Eighteen days after putting the spring weather of the northern hemisphere behind it, *Nereid* plunged into the southern hemisphere's autumn, ravaged by the west wind, then headed even farther, closing in latitude by latitude on the eternal winter of the polar cap. She passed under the raging Westerlies that stirred the face of the sea to a foamy froth up above, and it was then, when the dark, ghostly shadows of icebergs overhead began to appear in the forward camera view, that the order to surface was given for the first time in four months.

A blood-red sun crawled along just above a thick fog flowing along the northwest horizon. The air was piercingly cold. Bathed in pink sunlight, flat, tabular icebergs and countless smaller chunks of drifting ice bobbed in the water. At sixty-two degrees south—a hop, skip, and a jump from the Antarctic Circle, one of the continent's huge white capes could be seen under roiling gray clouds, indistinct, like some ghost or monster. It was nearly April, and Antarctica was just beginning to dress herself in winter.

One after another, the crew came out of the ship for the long-denied sight of the clear, blue sky toward the zenith, and for a breath of the stinging cold, salty air. Their teeth chattered as they stretched their arms and legs. The temperature was low enough that ice began to form on the hull and the diving planes right away. Sixty-two degrees south: that was the borderline between life underwater and life in the air. In the history of the human race, it also demarcated the 1960s from the 1970s. From this point forward, everyone would be gazing ahead in silence, looking not for some Antarctic station they were trying to get back to, but for the world of the 1960s that they had left behind so long ago. The world that lay north



of that decade's borders, that huge world that had grown to more than three billion people, which had recorded five thousand years of history, which had achieved a century of blindingly fast development, had come to a sudden end as the 1960s drew to a close, and humanity's 1970s would come only in the bitter cold and raging blizzards of the south, that harsh world sealed away in eternal ice.

*Scarcely ten thousand people...imprisoned on this white continent...*

With the aid of the unmanned beacon at Cape Adele, course corrections were completed, and a siren indicating that the ship would be submerging again soon rang out once more.

After taking a moment to gaze up at the auroras in the high skies—they blossomed like white flames from off toward Magnetic South—the crew silently disappeared back into the hatch. Plunged back down into the depths of the sea, they now had to rely on supersonic navigation aids to return to Scott Station. That was where the sole dock for the nuclear submarine had been thrown together. Once they were relieved, the crewmen would embark on another long, hard trek through the snow, each of them toward their own transient homelands scattered across this continent of ice.

*Nereid* blew its high-pitched, mournful siren into the blustery Antarctic sky. After that, the thin layer of ice that had formed on her nose cracked and crunched as the smooth shape of the submarine slipped back into the icy water. As the bridge sank into the water, the siren wailed loudly one last time. That sad note continued to echo off of newly forming icebergs and carried long and far over the pack ice. It sounded as if that barren wilderness of ice itself was shouting out in a metallic voice the question of that world that had gone to destruction.

*How did this happen, and why...?*



PART ONE:  
THE YEAR OF THE CALAMITY

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WINTER

1 Fifty-two Degrees, Six Minutes North

. It was at the beginning of February in 196X...

A great cold wave from Europe was yet again bearing down on the British Isles. Over the past three or four years this seemed to have become a regular event, and even these southern coasts were buried in more than twenty centimeters of snow. It was a cold that robbed people of the strength to think about anything except the cold.

"Terrible weather, eh, Professor Karlsky?" said a guardsman wearing Royal Military Police insignia.

A man had just emerged from near the entrance of a closely guarded, army-affiliated building. The poor village known as P— lay in a small, hilly region not so far from the navy harbor at Portsmouth.

"I feel sorry for the dogs," replied the tall, middle-aged man called Professor Karlsky. Looking around at the snow-covered stockade, he added in a somewhat nervous tone, "Their fur is completely frozen, isn't it?"

"That's the truth. The poor devils have a hard way to go. This cold is awful; we need to go to using Eskimo dogs or something in the winter."

In the commandant's stove-heated office, Karlsky had handed the black

attaché case under his arm over to the commandant. While the commandant examined its contents, a second RMP had searched the professor's body from head to toe. At first glance, it had seemed a very rote and casual sort of pat-down, though in reality, the RMP's dexterous fingers missed nothing.

The commandant had opened the professor's case and given a cursory inspection to what was inside. He shuffled through the documents, checked a wrapped sandwich that the professor had purchased in the cafeteria, and looked inside the can of tobacco the professor carried for his pipe. He had even opened the lid of his small Thermos to peek at its steaming contents.

"Don't look too long," Professor Karlsky said, a nervous twitch of a smile evident in his pale face and magnificent forehead. "It'll get cold. You think I can drive sixty kilometers in this cold without hot coffee?"

"Pardon our rudeness..." the commandant said, closing the Thermos's lid. "Going out on business?"

"A fortnight's vacation starting tomorrow," the professor said. "You got my request too, didn't you? Think I'll pass the time reading mysteries at my sister's place in Brighton."

"How enviable," the commandant muttered. "In this cold, we'll all start wanting to run off to the Bahamas or Fiji."

Back outside, Karlsky bid farewell to the guardsman and his dogs. His tall, hunchbacked form disappeared into the garage, from which soon could be heard the sounds of a fierce struggle to get a frozen engine started. At last, an early-model Willys jeep emerged, jangling with the clamor of snow chains wrapped around the tires. The commandant threw a switch in his office, and the hinges of the base's imposingly sturdy iron gate squealed open. The round-backed Willys proceeded very slowly into a wilderness covered in slightly dirty snow. As the commandant watched it go, he picked up the telephone. As if suddenly remembering their job, the ferocious German shepherds tied to the gate of the base suddenly began barking fiercely...

When the professor's car pulled out onto the road and turned east, it fell in line right behind a civilian-tagged escort painted in unassuming colors. Keeping about fifty meters' space between them, both cars headed straight east along a road where a light dusting of snow was again starting to blow around.

In Southampton, the professor stopped in at a pub in the city, threw down two glasses of grog, and then immediately headed straight out east again. Then,

ten minutes after the two cars had departed, the *real professor* emerged from the back door of the pub and climbed into a silver Bentley that was there waiting for him with its engine running. The mustached driver of the Bentley turned its nose in the direction *opposite* of Brighton and headed west. All scientists involved in secret military research were under surveillance by the intelligence community, but by the time one of them had called in from Brighton to inform headquarters of Professor Gregor Karlsky's safe arrival at his sister's house, the westbound Bentley had already turned north at Exeter, the capital of Devon County, and was bound for the farms and ranches of Cornwall. Night had fallen completely.



It was after ten when the Bentley stopped at a solitary house on a lonely farm nestled among the low hills of Cornwall. A man with swarthy skin and sharply up-turned eyes led three men out to meet the professor.

"Well, then...did it come off well?" the swarthy man asked as he extended a hand to the professor. "It must have been hard, traveling in this snow. Please sit down. Have something hot first."

"No thank you," the professor said in a hoarse monotone. "I've got *something hot* with me right here."

At the sight of the small Thermos he pulled from his attaché case, the other man's eyes narrowed even more, gleaming like needles in the light. The professor kneaded his numbed fingers two or three times, and then with slightly trembling fingertips, unscrewed the cap. With each turn of that screw, the tension in the room rose slightly, as if it were being lifted on a jack. The screw cap clicked against the table as he set it down, and one of the men drew in his breath loudly enough to be heard. The professor placed his fingers on the inner lid's cork and pulled. The lid came off with a pop, and a faint cloud of steam rose up from inside. The professor tilted the bottle and poured the black liquid inside into a mug, which he then picked up and gulped from in front of them. A faint smile twitched on one cheek. The narrow-eyed man raised his line of sight to look at the professor with approbation. Karlsky returned that stare with one of cold contempt and then, suddenly, perfunctorily emptied the liquid inside onto the floor. Then he placed his hand on the bottom of the Thermos and twisted it with all of his might. The bottom rotated away from the metal band, came off, and beneath the vacuum bottle of the upper

part was another, very small, flat vacuum bottle, its interior silver-plated. Karlsky removed its fluoro-resin plug, revealing an interior tightly packed with dry ice. The professor removed this bottle's lid and thrust it out toward the other man. Within, a tiny ampule was inexpertly enclosed, packed in the dry ice. The ampule's contents were frozen solid and rattled when shaken.

"Carry it as-is," the professor said stiffly. "Take care that the dry ice doesn't sublime. If you drop it, it's all over. Do not even touch it until you hand it over to the specialists on your end."

"And the papers?" the man asked, not touching that little glass bottle.

"You think I can just walk out with something like that?" Professor Karlsky spat out. "Besides, there's practically nothing written down about this one yet. The data are in my head. Memorize them and go."

The man turned away with a jerk of his chin. A small man with a mouselike face stepped forward.

"Around ten degrees below zero, on the Celsius scale, it enters a budding state and reproduction begins..." the professor began mechanically. "If it gets above minus three, its rate of growth increases over a hundredfold. If it gets above zero, it starts to grow like crazy."

As the mouselike man peered up at the professor, his fingers moved rapidly. He was using some kind of mnemonic device.

"When it reaches five degrees Celsius, it...begins to exhibit a ferocious toxicity. Its rate of growth at the toxic stage is..."—here the professor swallowed—"Around *two billion* times what it was at minus ten..."

A silence fell across the room that seemed to freeze everyone in it.

The professor began speaking again, this time in a voice that sounded like something was caught in his throat. "In animal experiments, ninety-eight percent of the house mice we infected were dead within five hours. The earliest deaths were at the two-hour mark.

"In the case of large mammals, the differences between individuals became more pronounced. At any rate, though, at the present stage, human beings absolutely cannot control it. We performed these experiments in a hermetically sealed chamber using manipulators—just as if we were handling radioactive materials."

"So this MM-87—" the tall man began.

"This is MM-88," the professor said.

"What did you say?" the man said, eyes flashing. "That isn't what we agreed to."

"MM-88 was created just ten days ago as a variant strain of MM-87. It was intended to weaken the toxicity of MM-87 so it could be put to use in military applications, but instead the opposite happened, and a strain two thousand times more toxic was created. Only a handful of people even know it exists."

"Very well," the man said with a nod. "I'll believe you. It's the same for us either way."

The tiny, frost-covered glass bottle was locked back into the bottom of the Thermos as before.

"Well, this concludes our business. Professor Karlsky, one week from today, fifty thousand pounds will be paid into your account in Brazil."

"I thought I told you, I don't want it!" the professor shouted fiercely, his clean-shaven cheeks flushing. "I never asked for money even once! If you'll just execute your instructions precisely as I've given them to you, that's enough. Hand this sample directly to Dr. Leisener of the BC Weapons Research Center in Pilsen—"

"You'll pardon me, Professor, but we won't be able to do so 'precisely.' We have no arrangements with the Czech."

"What?" The professor's face went pale. "That wasn't the deal! Listen to me. Dr. Leisener is a molecular biologist and the foremost authority on viral nucleic acid research. Most likely, he is the only person in the world who can develop pharmaceuticals to resist the MM-80 series. This thing threatens all humanity, and we need to pool the knowledge of all peoples to look for a way to fight it. But we can't do that because it's a state secret. And that's exactly why—"

"But, Professor..." the man began coldly. The small Thermos had at some point made its way into the hands of a large, powerfully built man who was standing behind the speaker. "To be honest with you, we're really nothing more than brokers. There's not just one, but two more go-betweens between us and the party for whom we are truly working. He's hidden way back in the fog. Who are we really working for? Some Nazi holdout in South America? A neo-fascist in West Germany or Italy? The Soviet Union? The Chinese? Perhaps it's France, possessed by visions of glory. France's hydrogen bombs are ten years behind those of the Americans and Soviets, after all. OAS? The Mafia?... Perhaps the CIA is thinking again of carrying out some experiment in Southeast Asia or somewhere. Whoever it is, there's no way for us to know. It's a very simple business: we receive a request, send back an estimate, draw up a plan, and make the deal."

The muscles in the professor's face were drawn up tightly, like those of a man

recently killed. In an instant, Karlsky overturned the table and made a leap for the Thermos, though the big man holding it looked like a ruined boxer. The man with the mustache moved instantly, however, and snapped Karlsky into a full nelson. With well-practiced movements, he nimbly slid his right hand to the professor's neck. There was a faint whishing sound, and the professor's face abruptly relaxed. The strength gradually drained out of his struggling limbs, his eyes spasmed, and his entire body grew as sluggish as if it had been turned into clay. At last, he collapsed. The man with the mustache lowered him to the floor and tossed a small, egg-shaped ampule into the fireplace. It was an anpin—a smaller version of the automatic syringes that America had long ago tried making their soldiers carry to deliver atropine shots as a defense against fast-acting G-gas. The needle was in front of the glass ampule, and the inside was filled with inert gas under high pressure. Just by pressing the needle down against the skin, the liquid medicine would be injected.

"Settle down, Professor," said the man with the upward-curving eyes. "We're going to take you to your home in Brighton. Tomorrow morning, it may be a little hard to get up, but once you drink some thick, black coffee, you'll be fine. As for our deal, we'll carry it out as I have explained."

"W-wait..." The professor was stretched out on the floor, a thread of drool hanging from his mouth, trying to say something though his mouth was not working properly. "Nobody...understands...dangerous...nobody...can stop it...nobody...realizes..."

"We're grateful for the admonition," the sharp-eyed man said with exaggerated politeness. He bent down beside the professor. "We'll inform those who come after us that they should be very careful with it. Now then, if you'll excuse us..."

The man with the mustache stepped forward with a bottle of gin, opened the cap, and splashed some of it across the professor's face and chest. The mustached man pulled him up onto his shoulders and carried him outside toward the Bentley.

"Well, then," muttered the man who was apparently the leader, looking at his wristwatch, "it's time for us to get out of here too. Starting now, we have ten hours before MI6 starts to move, and that's assuming the professor feels like confessing."

"That chap who was keeping an eye on him didn't notice anything, did he?" asked the big man a little nervously. He was placing the small Thermos bottle inside a metal trunk filled with packing foam. "Ever since that 'Spies for Peace' incident and the Profumo Affair, MI6's bosses have really been on edge, you know?"



What with the government having their secret plans for running things after the nukes fall outed in public...and the war secretary's call girl caught passing intel to Soviet spies, it's not hard to see why..."

"They've got one more reason to be edgy," the leader said, chuckling as he pulled on his overcoat. "Several years back, one of the men working in that germ warfare lab died, and that spilled the beans on what they were up to in there to the outside."

"What did he die of?"

"Pneumonic plague," the man replied casually, relighting his partially smoked cigar. "Now if you ask me, that sort of germ's a lot easier to deal with than, say, *botulinus bacillus* or melioidosis. But those European chaps got quite a shock when they heard the word 'plague.' After all, it's vicious enough to have halved the population on the Continent once. Here they'd thought it was extinct for the past two centuries, and it turns up *being grown* in a secret laboratory. Oop!"

He put up a hand, stopping the large man who was trying to get the lid of the trunk to close. "There must be some of that coffee left. Warm up whatever's still inside."

"Are you serious?" the big man asked back.

The man smirked sarcastically. "Perfectly serious...at a time like this. Well, we seem to be ready. Garlo, make sure we've left no clues."

The men went outside. Out in the freezing night, the wind had come up again, opening gaps here and there in the thick cloud cover through which the stars gleamed coldly and brightly. They went around to a barn in the back, where a small, frightfully old model twin-engine plane crouched in the light of covered lamps. It was painted pitch black. Long canvas sacks had been placed on both of its engines. In front of the sacks, old-fashioned Herman Nelson engine heaters with gasoline burners roared, warming the engines.

The pilot looked around at the faces of the three men and said nothing as he cut off the fan and pulled the canvases off the engines. What was revealed was a small wooden plane that somehow resembled the De Havilland DH-98 Mosquitoes that had been used as nighttime fighters during the previous world war. Although wooden planes had been old-fashioned even then, they had been used for nighttime air raids because they didn't get picked up on radar.

"How's the weather?" the sharp-eyed man asked as he climbed into his seat and fastened the belt.

"We've got wind and clouds. You never know what the weather agency is going to leave out, eh? Perhaps the wind will change direction."

"Fine." The man nodded. "Let's depart right away. Everything is finished here."

"What do you want to do about our course?" the pilot asked as he started up the engine. "Do we have to make it to Ankara in one hop no matter what?"

"*Absolutely*, we do," the man said in a forceful tone of voice.

"If we follow along the civilian air routes, we'll head out to sea from Marseilles, and then from the edge of Sardinia make for Athens. However, this baby's just barely got enough gasoline. With this bad weather, it might not be enough. We might even be forced to make an emergency landing in the Adriatic."

"Don't let that happen!" the man said in a voice loud enough to be heard over the engine roar. "If the gasoline won't last, then fly the shortest possible distance."

"There's one other route that goes straight to Athens and another by way of Rome." As he blew the right and left engines, the pilot nervously checked the hydraulic system. "But if we took either of those carrying a boatload of gasoline and two drop tanks, I wouldn't feel terribly optimistic about getting over the Alps. On top of that, there'll be three of you riding. Any way you look at it, these engines are period pieces; they don't have the horsepower. It's not going to be easy pulling her up to fifteen thousand feet."

"If the load is too heavy..." the man said in a half-joking tone, eyes shining coldly like those of a snake at the big man holding the trunk, "...then *someone* will have to get off. I trust you can manage if we lighten our load by two hundred pounds?"

The large man was uncharacteristically pale. He rubbed his parachute belt often.

"There's heavy snow over Southampton," the pilot murmured as he listened intently to his radio receiver. "Three thousand feet...here we go! Excellent. Let's give her all she's got before it hits us."

The plane began rolling forward with surprisingly little noise. It bounded over the uneven ground until it came out onto the level part where a white line was clearly visible even in the dark. Although it resembled a painted line, it was actually an accumulation of snow that had apparently been carried down from the hills behind them. Little enough that if the sun were to shine on it, it would melt, and if it were to snow, it would be lost. As though testing its wings, the flaps were lowered two or three times, and then the wooden twin engine plane arrived at the starting

line and opened up the engine all the way. It merely waddled along at first due to the drop tanks attached to its underbelly. At last, it got off the ground, and after clearing the hills ahead of it, disappeared into the blackness of the night sky. The frozen stars that had been visible here and there just a little while ago were now concealed by thick layers of cloud, all save one. The black twin-engine plane made for that star, headed from fifty-one degrees north toward forty degrees north, and from west four degrees, over the Greenwich Meridian, to thirty-two degrees thirty minutes east. It was a journey of about one thousand six hundred kilometers flying in a diagonal line across a rectangular slice of the earth's spherical shape... a long, difficult, and secretive journey.

At the same time that this strange wooden plane, loaded with three strange men and their strange cargo, was taking off from Cornwall with a snowstorm bearing down from the north, five hundred kilometers west of the Turkish capital of Ankara—far south of the airplane's Near Eastern destination—the longitudinal line at thirty-nine degrees thirty-five minutes east ran southward. It crossed over the blazing An-Nafūd Desert and the Red Sea; it grazed Ethiopia's capital of Addis Ababa; and it crossed the equator over Kenya. At Mozambique, it bid the continent farewell and crossed over vast expanses of sea, before running aground at last on the continent of Antarctica.

There, one other journey was about to begin.

## 2. Sixty-nine Degrees, Twenty-five Seconds South

"That about does it..." said Norio Yoshizumi, giving the final checklist a tap. He signed the copy and handed it to the officer who was standing by. The officer bowed slightly, put the copy in his breast pocket, and glanced at his watch.

"Departure's at 2300, so there's still a little time left." The middle-aged officer, Taguchi, smiled, drawing lines in his tanned cheeks, and pulled out that Meer-schaum pipe he was always smoking from the pocket of his overcoat, offering it to Yoshizumi. "How about it? Have a pinch to remember us by?"

"Thanks," said Yoshizumi, returning the other man's smile and pulling off a glove. Yoshizumi had often smoked that pipe—it was Major Taguchi's pride and joy—during the voyage. That pipe had belonged to Major Taguchi's father before him. Though it was reasonably worn, there was not a single crack in it, and Yoshizumi especially liked the taste of its mouthpiece.

Major Taguchi handed a bag of Capstan Navy Cut to Yoshizumi, its mouth tied with a string, and for himself took out 3B's Blackwood and put it between his teeth. The wide rear deck was lit with glittering lights, and on it a large, specially fitted Bristol helicopter, having finished taking on baggage, was noisily starting up its rotors. The uproar had mostly died down at the scene that stretched from the rear deck almost to the lift that went down to the ship's hold. And all that could be seen now were the figures of sailors running around picking up the canvases and ropes that had been thrown aside. The arm of the derrick that had been in operation all day was now also firmly bound against the rough weather. Yoshizumi looked down from the deck and, bathed in light from the lamps on the snow, saw the side of *Shiretoko* on a field completely covered in ice, above which its reddish draft, usually submerged, was peeking out.

*That's because it's unloaded two thousand tons in four days' time...* Yoshizumi thought, breathing out a deep sigh of relief. *Thank goodness the weather held...though that's already over now.*

After days and nights of hard work unloading the ship, the strong pipe smoke caught in Yoshizumi's sleep-deprived throat a little. Thanks to the frozen, dry air of the Antarctic, his smoking didn't go well at all. Even so, Yoshizumi and Major Taguchi, reluctant to say farewell, smoked in the clear air, exhaling pale blue vapors. The whistle's sound grew shrill. The refitted Bristol—so it was called, although being as its blueprint had been purchased and greatly improved upon in Japan, it was more properly called a Shin-Mikasa L-Type—was finished loading, with the door half closed.

"The Samson helicopter will make one more round trip, so I'll go back on it," Yoshizumi said in reply to an inquiring look from Major Taguchi. "There's one more reserve turbine to go."

"So we part at last, eh...?" Major Taguchi leaned against the rail, staring out beyond the bluish ice fields that spread out beneath the white nights of the Antarctic, looking off toward Ongul Island, where coal-black boulders could faintly be descried.

Standing on this island was a streamlined, portable tower several meters tall, on top of which sat a giant, ovoid tube that lay horizontally, its black mouth wide open. A turbocharged wind turbine. It had been installed the previous year, and now, outside of its role as a backup source of electricity, it served mainly as a case for various kinds of observational instruments.

Below the generator tower, domes resembling Inuit igloos, only flatter and larger, gleamed whitish in the lights. They looked just like the innumerable air bubbles that rose up through the ice field. Beyond them the “white continent” lay enclosed in ancient snow and ice, encircled by precipitous glaciers and icebergs. Including the ice fields, its area rivaled that of South America. The white mountains of this giant, cruel continent went on and on like a dream against the gray horizon.

Major Taguchi turned his head toward the right to gaze at the white cliff face of a cape that stood between him and the Prince Olav Coast to the east, then turned the other way toward the dark mountains of snow that were the Langhovde Hills. From the Shirase Glacier, which emptied into Lützow-Holm Bay, carving a notch into the western edge of Enderby Land, this eastern coastal region was by the 1964 naming called the Souya Coast, and since the seventh International Geophysical Year had been Japan’s base for the International Antarctic Development Olympiad, which had kicked off three years ago.

And now...

Showa Station, having begun as four rough huts built in February of 1957 by the eleven-member First Wintering Team under Captain Nishibori, now consisted of seven domes and was on its way to becoming a large, semipermanent base. Japanese polar research, which had halted between 1962 and 1964, had picked up again and was now approaching the level of its earlier peak.

“They’re building those domes really fast, aren’t they?” murmured Major Taguchi as he squinted in the direction of Showa Station’s new, almost-completed Ninth Section. “There are already two more just since the supplies were dropped off. Even for prefab buildings, that’s an incredible speed. How do they build them?”

“They glue them together,” Yoshizumi said with a chuckle. “No, really! These days, they’re coming out with all kinds of very simple, very strong bonding agents. I hear the Americans are even using metallic bond to build rockets for going into space. Cyanide acrylate. That stuff’ll stick in two or three seconds, and as long as there are no air bubbles, it won’t budge. The plastic plates they use to assemble the domes come with numbers that tell you what goes where, and the edges fit together male-female style. On one edge, there’s sealant A, and on another there’s sealant B. If you try to put an A and an A together— or a B and a B—the parts won’t stick at all. But when you pull off the protective tape and put the fitting edges together, the A and B substances have a chemical reaction, and ten seconds later, you couldn’t pry them apart with a crowbar.”

"How about that," Major Taguchi said, impressed. "So you're going to be living in a glued-together house when the temperature's forty below outside and a blizzard is hitting you with fifty-meter-per-second winds?"

"Next year, definitely come to the base," Yoshizumi said. He took one more pull on the pipe, though it had already gone out. "You won't believe how nice it is. There's a little theater, a bar. The only thing missing is some ladies. When I read stuff like the records of Nishibori's first winter there, I really feel sorry for them. Now they're finally getting ready to start test runs on a thousand-kilowatt portable reactor."

"Speaking of feeling sorry for someone," Major Taguchi murmured, glancing toward the rear of the sleek nuclear icebreaker *Shiretoko*, "after riding in this boat, I feel pretty bad for anyone who's had to ride on *Souya*. That ship's been ferrying polar teams down here since the very start. It's terribly out of date now and was never all that well made to begin with. I hear it can't break more than a meter and a half of ice."

"The record says it's been rescued time and again by the Soviets' *Ob'* and the Americans' *Hudson Island*."

"Yeah," Major Taguchi agreed. "It was like a dream for me when I first rode this boat. Cruising speed of twenty-eight knots, only needs fueling once every four years, and a steam gun to use in tandem with the power crusher. Breaks more than eight meters."

*On top of that, Yoshizumi thought, this time out, she's got a brace of big cargo helicopters and three Samsons that can fly dangling a five-ton container underneath.*

He watched a V-shaped Bristol as it landed at the base heliport five kilometers away. *Japan has really been interested in Antarctica these past two or three years. I don't know; maybe it's because they don't want to get left behind by the big countries, but when I think of how it used to be, something seems a little funny.*

Major Taguchi put his pipe away in a pocket and smiled at Yoshizumi. "It looks like this Antarctic boom is going to last for a while," he said. "You all are on the cutting edge of your generation, as it were."

"Even so, why are they so excited about it? You'd think a festival was going on from the uproar," Yoshizumi said. "To us, it can't help looking a little suspicious. They originally started this because of the IGY. We're here to carry on the original goal, as it were: scholarly research about Antarctica. But lately the research teams

have been getting shoved off to the sidelines, and all the interest seems to be in resource exploration—cold endurance tests related to those reactors—that kind of thing. That said, though, they're not really going far enough in terms of investment if they're planning to, say, build a polar city or get serious about developing resources here. I do wish they'd make our objective a little clearer, though, even if it's nothing flashy like the Americans going all out and building a space station at the South Pole."

"Maybe they're just being good bureaucrats and calling 'dibs' while they can," Taguchi murmured with a frown. "Considering politics these days, there's also the fact that our politicians will be viewed as incompetent unless they keep coming up with new symbolic accomplishments and hammering out new goals one after another. They need to lead and pull the world along behind them. They've got to find ways to show people that Japan ranks high on the world stage. That's why we're finally launching a tiny little satellite with a tiny little rocket more than a dozen years after the Soviets launched Sputnik. This time, you all get to be the flag they wave around."

"That's a pretty cynical way of looking at it," Yoshizumi said with a laugh. When he smiled, he had dimples in his snow-tanned cheeks, and white teeth peeked out from between his lips. He looked much younger than his thirty years when he laughed. "But really," he said, "we should be grateful for this boom, don't you think? We should be smart and take whatever we can get while we can get it—save it for when this boom is over."

"Well, that's true after all." Major Taguchi took out the pipe he had just put away but didn't put it in his mouth. He just played with it, enjoying the feel of its bowl in the palm of his hand. "Booms have their good side too. They can be much ado about nothing, but they do leave us with substantial benefits, and with that we can progress little by little. Even this ship"—he clapped his hand against her rails lovingly—"she's the offspring of the second atomic power boom. This may have been before your time, but in 1966, around Showa 30, Japan had its first boom in atomic power for peaceful purposes."

"Yes, I remember." Yoshizumi nodded. "I was still in junior high."

"And two or three years later, the flame had completely fizzled out. But still, during that time, nuclear energy really soaked into the world of industry. Then, from the year after the Tokyo Olympics—around 1965—the second boom started. After the Olympics, the politicians wheeled out space development and nuclear

energy as their latest symbols for Japan. And thanks to our climbing aboard that bandwagon, the nuclear ships they said we'd never have until at least the '70s we had in almost no time. The Maritime Safety Agency announced the plan in 1964, which included a new polar research ship—"

Suddenly the *Shiretoko's* siren began to wail, and they could feel the reverberations in their stomachs. Twenty-two hundred hours: the signal that one hour remained until departure. From New Showa Station, another siren sounded as if in answer. A group of adelie penguins, inured to the noise of helicopter rotors though they were, took off waddling as though surprised by the sirens. One by one, they awkwardly jumped into the water through the tracks of the icebreaker. At the sight of their excited flapping about, the two men burst out laughing in spite of themselves.

"The nuclear energy boom probably had something to do with the reductions in weapons production, and the US and Soviet Union unloading their excess enriched uranium on the market." Yoshizumi waited for the siren to stop wailing before he continued. "Lately, there's a tendency for a lot of booms to stick. Even in Antarctica, there's a huge nuclear energy boom. Leaving aside the old hands at it like McMurdo and Mirny Stations, there's not a country represented here that doesn't have a small nuclear power plant set up somewhere."

"And now the space boom is starting to stick," said Major Taguchi. "Is there anything to that story about NASA bringing a rocket down here?"

"Apparently so. They'll be ready to start serious testing later this year, after they finish the gantry foundation and do a little terrestrial testing of the Centaur engines."

They watched as the queer form of the Samson helicopter, resembling a crane fly on stilts, took off from the station and began to come nearer. To Yoshizumi, the helicopter looked like nothing so much as a tall, four-legged table flying through the air as it lifted off. The Samson pulled the five-ton container it was carrying into the sky like a bee with a grain of pollen.

"Well, then," said Major Taguchi. "It's just about time to say goodbye."

"Hey, Taguchi..." Yoshizumi murmured unexpectedly. His voice was oddly hushed. His expression had grown more serious as he stared off into the distant polar mountains. When he made that kind of face, he looked as unworldly as a young boy.

*That's a look peculiar to the people of this generation,* Major Taguchi thought.



In other words, it was the face of one unharmed by the great upheavals of the world.

"What do you think will happen to the world from here on out?"

"Who know?" said Taguchi, a bit at a loss for words at the unexpected question. "What'll happen? Things won't change much at all, right? Already, the wars and the panics aren't—"

In sudden surprise, he left his sentence unfinished. *That was it!* Already, a fairly long period of time had passed without anything much really happening. So many times, the alarms had been raised for impending crises, and so many times, disaster had been averted at the very last moment. There had even been a moment when it was feared that the economic bankruptcy of the great nations would overturn the world marketplace, but in the end, that had been dodged in the form of a rather long period of recession. This was only a rumor, but there was even a story going around that the Soviet Union had—behind the scenes of the world economic stage—bailed America out of its economic crisis. To put it in nautical terms, "restorability" was the thing that was growing stronger and stronger in the world now. And from now on...

"Well, even with a few oscillations," Taguchi said, "civilization as a whole will keep on slowly inching forward, eh? Why do you ask?"

"Oh, no reason, really," Yoshizumi said with a bashful little smile. "Do you think that war is... a thing of the past now?"

"Not hardly," said Major Taguchi. "Across the board disarmament will take a long time, and NATO is like a car manufacturer that keeps putting out a new model every year—new armaments, new positioning, and new strategy, all standard. File that question under 'Not hardly.' The strategic nuclear framework between the East and the West will take shape within the next three or four years. The American president and the Soviet premier will meet this summer, and that's when things will become more definite, right?"

"So even though one part of the world keeps on changing steadily," Yoshizumi said vacantly, "there's another part that's hardly changed at all. Disarmament. A lot of time has passed since the first voices calling for it started to be heard."

"But the part that's changing a lot and the part that's been so gridlocked are both changing now, don't you think?" said Taguchi in a somewhat ambiguous tone. "The world today is still riding on a lot of inertia from the 1950s. Making it change direction is incredibly difficult. Hey, it's about time for you to go..."

Yoshizumi continued slowly pulling at the Meerschaum pipe, however. The thin smoke rose slowly up into the whitish night sky of the Antarctic summer. The wind was blowing from the east. Way over on the other side of the Prince Olav coast, the area around Hinode Cape had grown dark. After he had smoked the very last of the tobacco, Yoshizumi tapped the pipe lightly against the top of his palm.

Yoshizumi held the pipe out for Major Taguchi to take back, to which Taguchi replied, "You can have it."

Yoshizumi's face lit up instantly. "You don't mind?" he asked. "In that case, lend it to me until you come later. I'll take good care of it."

"No," Taguchi said. "Don't worry about it. I don't mind. I'm not coming next year."

"Why not?"

"When I get back to Japan, I'll be assigned new duties right away. Training courses," Major Taguchi said, sounding a little forlorn. "I'm to be placed aboard a foreign ship for one year. I'll probably never ride on *Shiretoko* again."

"Then...this really is goodbye, isn't it?" said Yoshizumi regretfully. The two men, ten years apart in age, had first gotten to know one another thanks to a pipe. From the start, they had gotten on unusually well and had been as inseparable as brothers throughout the sea voyage. "But we may meet again in Japan," he added. "I go back home once every four years."

Taguchi extended his hand. "If we can't meet then, let's meet in an old folks' home in the twenty-first century. I heard on the morning news that they're close to a new wonder drug for cancer. Sounds like I'll live to be a hundred after I retire."

"Well then," Yoshizumi said with a smile as he put out his hand. "Until the twenty-first century..."

They gripped one another's hands firmly. Then Yoshizumi turned away and hurried off toward a helicopter that was lifting a container to its underbelly, its rear wheels already starting to rise off the ground a little. When its four wheels separated from the deck, Major Taguchi caught a glimpse of something white in its window. Yoshizumi was waving, that Meerschaum pipe in his hand. Taguchi waved back at him and then walked off toward his cabin, crossing the rear deck, which was as crowded as it had been during the preparation for departure.

Clouds were roiling up far beyond the Prince Olav coast. He could feel in his skin the start of a sudden drop in pressure as the cold became more severe. Before he entered his cabin, he looked back across the icy plain and saw above the

station the brilliant flag of the Rising Sun flapping in strong beams of light from its lamps. From the cluster of white bubble-domes, he could see three snowmobiles approaching—burdened heavily with people who had come to see them off—going over puddle after puddle. When he listened closely to the voices barking and reverberating from the speakers on top of the vehicles, he could make out the melody of “Auld Lang Syne.” Major Taguchi grimaced slightly and returned to his cabin.

*Shiretoko*’s steam whistle roared again, this time signaling the thirty-minute mark before she would put out to sea again.

### 3. Seven Degrees, Twenty-four Minutes East

It happened around the time that *Shiretoko* was setting out from the waters of Ongul Island, heading back through the packed ice along the trail it had broken earlier.

A night train emerged into Italy, having departed from France and traveled through the Mont Cenis Tunnel beneath the snow-ravaged Alps. The assistant driver saw the bright flash of an explosion in the northern mountains on the near side of Torino. Immediately, he used the onboard telephone to report it to the Torino police.

An investigation was made after the winds had died down the following day. The crash site was on an Alpine slope about thirty kilometers west of Torino. It was surmised that the airplane had been flying blind in the middle of the snowstorm, and because the wind had suddenly begun to blow from the southwest during the night, its pilot had misjudged his course and been blown northward, to finally crash in a difficult Alpine crossing. The blackened bodies of the passengers—three in number—were discovered in the wreckage of the cockpit. Two engines and various fragments were scattered across a kilometer of snowy slope, but the airframe itself had cleanly burned. From the few fragments of its body that remained, investigators learned that it had had a fully wooden airframe, and this caught the attention of one assistant inspector who had in the past had dealings with Interpol.

A request went out to all the nations of Europe for information regarding the downed airplane, but when no plane was found that matched its description and its nationality remained unknown, the incident began to draw suspicion. An information officer attached to NATO arrived, and it became apparent that the black paint on the fragments was made for confusing radar waves, which generated a buzz of interest among the spy and intelligence agencies of all the European nations.

Was this a spy surveillance craft, like the infamous U2? they wondered.

In the end, however, it became clear that they would not be finding any clues.

Right around that time, Professor Gregor Karlsky, who had been working for the military in secret, was discovered at the Brighton home of his sister-in-law, where he had committed suicide by cutting the artery in his left wrist. MI6 came out to investigate. Nobody, however, thought to connect an airplane crash in the Alps to the suicide of a professor five hundred kilometers away. However, MI6—which was in terms of implacability on par with the Israeli Mossad—slowly, steadily began to reel in the threads it was eyeing so suspiciously.

Beside the wreckage of the crashed airplane, smashed against exposed boulders, its lid blown off, its body torn apart and twisted, there lay the scattered remains of a duralumin trunk. Though it appeared as though all of its contents had burned up in the explosion, a dozen or so meters away, a thin metal plate lay in the snow. Its blue plastic coating was mostly destroyed, and it retained only a faint hint of its former cylindrical shape. In the snow nearby was a boulder on which broken shards of silver-plated glass lay scattered about, sparkling in the sunshine. The tiny glass shards occasionally crunched under the shoes of the investigators and bystanders who had gathered. Under their weight, the sparkling bits of glass were ground into a fine powder. What bits remained stuck were mostly tracked around among the snow and the rocks when the investigators and onlookers went back down the mountain.



In almost no time afterward, the final cold wave of that year hit. The wreckage of that strange wooden airplane had been carried away for the investigation, but the bits of powdered glass remained where they were, under a layer of snow that just barely covered them.

Then...

When Old Man Winter's onslaught had finally subsided, the number of sunny days over the Alps began to increase. The snow dividing Italy and France, which lay between the two high peaks of Mont Blanc and Mont Viso, began to melt slightly, and that water was gathered into the Fiume Po which runs west to east across the fertile Lombardia Plain and empties into the Adriatic Sea to the south of Venice.

The railway that passes by Italy's northern entry point of Torino ran west

by way of Milan, passing through Venice, Trieste, Beograd, and Sofia on the way to Istanbul, gateway to Asia, then turning southwest, past Genoa and the eastern coast of Italy on the way to Rome and Napoli. To the east, it ran through Lyon and Dijon to Paris, heading into the very heart of Europe. From Milan, there was also a line that ran through the famous Simplon Tunnel to arrive at Lausanne and Geneva in Switzerland. All of middle and eastern Europe was bound together in a net of railways. In the great cities of Europe—Rome, Paris, Geneva—there were international airports where streams of people flew down from the sky and back up into it, flowing like great rivers...



It was yet a little early for the snow to thaw. This aged planet spun round and round through the blackness of space, its axis tilted to about twenty-three point five degrees as it continued on the recursive journey it had made billions of times already, its axis of rotation gradually nearing the point of the spring equinox.



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SPRING

1      **March**

•      Around two o'clock in the afternoon on March 13, on the road leading from Civitavecchia to Rome, a fancy sports car was involved in an accident.

The car was an Alfa Romeo gas turbine "Barca Volante." A tractor trailer hit the edge of its bumper, barely avoiding a head-on collision, and pushed it into a guard rail. According to the testimony of the truck driver, the sports car had been doing about ninety kilometers per hour on a straight road when it had suddenly started weaving as though the driver were drunk. It had run right over the centerline, and panicking, the truck driver had swerved to avoid a collision and then slammed on the brakes. Thanks to the fact that the bumpers had caught on one another, the sports car had managed to avoid going over the guard rail. Two or three eyewitnesses corroborated the trucker's testimony.

This was an unusual accident because there were as yet very few turbo cars on the road. The scene was quite terrible. The rear part of the Fiat engine had been ripped open by the shock of plowing into the guard rail. The turbine blades that had flown out of it were stuck in the back of the trailer and in the asphalt like silver needles. However, the two passengers had been separated from the engine by a protective steel plate set behind it, and had thus managed to avoid being skewered.

By the time the driver of the truck had run to the other car, its driver was already dead. To lower the likelihood of dying in an accident, flexible steering columns were installed in almost any high-performance automobile and were assisted by numerous driver-protection and shock-absorption features that activated at the slightest bending of the wheel. At first glance, the driver of the sports car had appeared to be uninjured, aside from his right ankle, which was stuck in the bent body of the car.

Even so, the man was unmistakably dead. His leaden face hung low, and there was no longer any pulse in his forward-thrust arms. The glamorous platinum blonde in the side seat appeared to have sustained far worse injuries. She had not been wearing her seatbelt, and her face was covered in blood from where her forehead had struck the windshield. Her clothing was torn here and there, exposing a terrible laceration, and her chest was visibly collapsed from where it had struck the guardrail. A ruptured lung was blowing out bubbles of blood.

Even so, the woman was alive. An ambulance raced to the scene, and when the emergency crew rescued the woman from the twisted, warped body of the car, she was dripping blood from her mouth, continuing to mutter all the while:

“Tonio...Tonio...oh, stop it...what’s wrong with you...”



There were two reasons why this accident drew so much attention and left such an unusually detailed record. The first reason was the identity of the man who died. A film and television heartthrob, Antonio Sevellini had been a world-class actor, known for his cosmopolitan, playboy lifestyle and taste for luxury. As if that weren’t enough, the woman in the car with him was a call girl who had once achieved international notoriety due to her role in a NATO spying incident. Because she had been in the midst of a passionate love affair with Tonio—and because Tonio was the lover of a Middle Eastern princess whom it was rumored he would soon marry—the scandal-loving public went into overdrive at the news of his death. A call girl implicated in a spy case, a Middle Eastern princess, an international movie star—theories of conspiracy and assassination involving these three abounded, although the police authorities investigating the accident apparently viewed it as nothing more than a bad turn of luck that had nothing to do with scenarios suggested by juicy gossip.

The second reason for all the attention was Alfa Romeo, the automaker that



had built the car. Their Barca Volante was the world's first practical two-hundred-kilo-class gas turbine sports car, and questions still lingered regarding its safety and handling. The automakers of Europe and America had all been developing concept cars for a new class of vehicles that could maintain a steady two hundred kilometers per hour. This was because they were looking ahead to the "Eurasian Highway"—a giant, two-hundred-meter-wide roadway begun on nearly a billion dollars' credit and investments from almost every nation, to start in Paris and continue in a nearly straight line through Luxembourg, Berlin, Warsaw, and Minsk before finally terminating in Moscow. The trouble with building cars in that class had involved the endurance of the tire and axle areas and the output of the engine. In the case of the engine, a rotary design made in West Germany had been considered the favorite to develop the industry standard; as for cracking the wheel problems, the likely contenders had been the Rolls Royce hovercraft and the Curtiss-Wright aircar from America, which had brought about fundamental change in the way that cars ran.

In the midst of all this, however, Italy's Alfa Romeo, an automaker famous for its sports cars and racecars, had unexpectedly unveiled its Barca Volante—a gas-turbine car with a maximum speed of two hundred forty kilometers per hour. The world had caught its collective breath at the sight of its myriad new features. The first thing that caught the eye of the press was its incredibly lightweight Fiat Virgo gas turbine. In city traffic, the stream of hot, rapidly moving exhaust from the turbine blew mostly downward against the ground thanks to a turbulence plate, but out on the highway, where speeds exceeded two hundred kilometers per hour, it blew directly from the rear, giving a boost to the car's speed, just like a turbo prop. Because the blades of the low-pressure turbine were fitted with the epoch-making changeable pitch device, the shift in output from zero to full power was truly smooth. Equipped with Goodyear's heat and abrasion resistant, elastic fluororesin tires, internal anti-slip plates, an optional autodrivers that could be used both in city traffic and during high speed travel, automatic switchover to power steering, numerous new features for protecting the driver, plus a radar alarm and night vision for foggy nights, this high-performance automobile was touted as having stability of speed and drivability equal to a motorboat at two hundred twenty kilometers per hour.

Beaten to the punch, the other automakers were naturally on the lookout for opportunities to nitpick and criticize the new vehicle.

Barca Volante's fully loaded deluxe model had just been announced in early March, and only three had as yet been sold to private citizens in Europe, among whom was Tonio, who—in recognition of his international fame and the skill he had displayed in the former Le Mans auto race—had been enjoying a test drive, as it were, at half the regular price.

PLAYBOY DRIVER IN FIRST TURBINE AUTO CRASH was the headline splashed over front pages all across Europe. The R&D and sales departments at Alfa Romeo went white in their collective face, and an investigation was launched into the cause of the accident. Had it been some flaw or defect in the automobile? Or had it all been the driver's fault?

Witnesses all claimed that in spite of the straight road, Tonio hadn't been going *all that* fast. Ninety kilometers per hour, maybe less. The traffic accident experts who investigated the case said the same thing. The most eloquent testimony of this came from the car's speedometer, whose needle had remained stuck at eighty-five.

The odometer showed that the car had not yet gone fifteen hundred kilometers. Taking that into account, what could the cause have been? For it to have crashed so soon and at such a low speed—was there some fatal flaw in the steering system? And what had happened to the driver protection system they were so proud of, said to be on par with that of a Mach 3-capable jet?

Each and every bit of information that came in seemed to be nothing but bad news for Alfa Romeo. On top of that, hearsay began to surface that sounded at first blush spectacularly bad for the company. The eyewitnesses were in agreement with one another, saying things like, "It looked like Tonio had lost control of the steering wheel." Also, people who had seen Tonio driving from various spots along the sidewalk averred that, "Tonio had this incredibly glamorous woman sitting right beside him, but it was like he was taking the test for his driver's license—he was clinging to the wheel without batting an eye at her." Even the guy who had topped off his kerosene at a petrol stand in Civitavecchia said he was "driving extremely carefully."

From this, it did not appear that he had lost control of the vehicle due to any passion between him and "Ms. M."

A story underscoring that point emerged by way of Tonio's family doctor in Milano. Some years ago, Tonio had narrowly escaped death in an accident at the Le Mans race, and he had afterward developed (and striven earnestly to conceal) a mild phobia of high speeds. "Ever since that day, he was always a careful driver," the doctor said.

However, when he had been approached with the offer of a half-price Barca Volante, Tonio, being possessed of quick-draw *linga* such as had not been seen since the days of Errol Flynn, had found himself unable to turn down this phallic totem worshipped by women the world over and had thus made a show of accepting the offer gladly, though internally he had been conflicted.

Taking these factors into account, the only way left to learn about the circumstances of this bizarre accident was to hear them directly from the mouth of Ms. M, who was hospitalized in Rome. Doctors made a preliminary announcement that Tonio's cause of death was cardiac arrest caused by instantaneous neural paralysis resulting from the impact of the crash—in other words, a heart attack brought on by shock—but this was a little baffling, because it was known that Tonio had been in extremely good physical and mental condition up until that point, and that his heart in particular had been in fine shape. "It was probably because of the blow he took to the solar plexus from the steering wheel," appended the already doddering and senile forensic specialist. Yet it seemed odd that Tonio, who had never thought twice about getting into brawls even while groggy and plastered, would be done in by a single blow to the body. Besides, this was Alfa Romeo's vaunted bendable steering wheel. And so it was that the efficacy of the safety wheel—which should retreat softly like a feather futon if the driver's body strikes it—became a target of heavy criticism.



Because of one thing after another, Alfa Romeo was stuck grinding its teeth for a week. On the eighth day, Ms. M had finally recovered to a point at which visits could be permitted. For all their spectacle, Ms. M's injuries were less serious than they appeared. Even her head injuries had not damaged her brain or skull, and the sunken place in her chest was not—from the standpoint of modern medical technology—life-threatening. On the eighth day, an investigator from Alfa Romeo, having kept the hospital under siege all week, leapt up when word was given that a visit would be allowed.

"Wait just a moment, please," the attending physician said. "She's still suffering from a strong psychological shock, you know. Please limit this visit to one person, for no more than fifteen minutes."

"You've gotta be kidding!" cried the investigator, as did all the newspaper reporters who had been thronging in with her from the start.

"Since when is only one person allowed?"

"Everybody, wait just a minute," said the inspector in charge of the accident investigation. "Right now, please let the police take her statement first. It doesn't sound like Ms. M is ready to be answering a lot of obnoxious questions yet. So first and foremost, we'll be asking her about what happened, and that's all. At least save the morning-after talk about her and Tonio until she can sit in a wheelchair. In exchange, I'll let you listen to what Ms. M has to say by way of this wireless microphone. Tape it, and then do whatever you need to do."

Some called this a high-handed abuse of authority, and as a result there was some brief trouble, but in the end it was agreed that the detective would go as representative, while the Alfa Romeo investigator and the members of the press remained glued to the speakers in the waiting room.

The inspector's voice came from the speaker: "Are you feeling better, Ms. M?"

"Yes, thank you," replied an unexpectedly strong, if coquettish-sounding voice. "I'm very...well. But my face. I wonder if these wounds will heal completely."

The doctor's voice sounded over the speakers. "If you wish, we can make you even more beautiful than before. Though you're lovely enough already."

"Do you feel well enough to talk for a few minutes?" asked the inspector. "I'd like you to tell me about what was going on in the car at the time of the accident. A simple explanation will be fine. Just so we can understand the circumstances a little better. And in particular, so we can establish for sure that the truck driver was not responsible."

"The man in the trailer was not to blame," Ms. M said crisply. "It was all Tonio's fault." Suddenly, she began to cry bitterly. "It was terrifying...truly terrifying. Nothing like that had ever happened to me before."

"Easy, now," the attending physician said. "It's all right. You're completely safe now."

"What did Tonio do?"

"Well, I want to say up front, there's nothing between Tonio and me...it's true," Ms. M said through her tears. "We first met last winter in Lausanne, and then by coincidence I ran into him again. It was about a month ago. After that, we went to Monaco, and Tonio and I both won quite a bit of money. He called me his goddess of luck. We were together as far as Genoa. I was in Livorno when

Tonio went to pick up the new car. Later, he called and said he'd drive me to Rome..."

"Nothing between them, eh?" sneered a reporter from *Paris Match*. "Hah! A whole month wandering around together on the Ligurian coast? Any way you shake it, that falls into 'hot and heavy' territory."

"That's enough about Tonio," said the inspector, her voice patient. "Please tell us about the accident."

"Yes, well...when we left Civitavecchia, Tonio was feeling *perfectly well*. He'd gone to bed early the night before."

This elicited a snort of laughter from somewhere in the press corps. The news that Tonio had been well had the Alfa Romeo investigator biting the frills on her hat. "Hey, look at that..." said one of the reporters, nudging another who stood nearby. "How much you wanna bet she eats that Borsalino before she's done talking?"

"...the new car was so amazing that the boy at the petrol stand had his mouth hanging open for a full minute. Even so, Tonio drove like he was afraid of it. He went at a crawl in the city, and when we came out onto the highway, he made sure his seatbelt was on tight and would hardly speed up at all. I told him I'd heard these cars could do over two hundred, and maybe I shouldn't have, but I told him to go faster. But that man—he would only go up to around fifty or sixty on average, and other cars kept passing us. For a man who said he was a Le Mans racer, I thought he would be a little more masculine. Finally, Tonio said he'd open her up once we got onto a long, straight stretch of road. No, he didn't in the least look like he was particularly frightened. He seemed relaxed, and he was even singing a song. But he never once turned to look at me, and he didn't reach out to touch me either. I was a little irritated and was sitting pretty far away from Tonio in the seat."

"He may have had a body like a Volante," someone murmured, "but when it came to *engine performance*..."

"Still, he seems to have been fine up to about a hundred," said someone else.

"Sssh!"

"Pretty soon we got on a straight road. Tonio said, 'Here we go!' and stepped on the pedal. He was leaning over the steering wheel just a little. It was a truly incredible car, and we were doing over eighty in no time. And that's when..." Suddenly, her voice grew a little shrill and trailed off. For a time, there was only the sound of her sucking in air as she breathed.

"I saw the truck coming from far away...and that's when Tonio gave a kind of

little shout, and then just suddenly hung his head and his body slumped against the steering wheel, and slipped...and we swerved so sharply I thought I would be thrown from the car...and then the truck was right in front of my eyes...this huge tractor trailer the size of a mountain was...I screamed, "Tonio! Tonio! What's wrong with you? Stop it!"

There was an earsplitting shout from the speaker.

"Ms. M!" cried the doctor's voice. "Get an injection ready."

"Ms. M!" urged the inspector again and again. "Hang on, Ms. M!"

The reporters all looked at one another.

"Well, sounds like that's it for today," said one. "But at any rate, it's clear now that the cause of the crash had something to do with Tonio."

"It was probably cerebral anemia," another reporter opined. "Caused by freaking out in a car that was just too awesome. Alfa Romeo will be relieved to hear their car wasn't defective."

They were all already moving away from the speaker. Rather odd noises had emanated from it for a few moments, but now they stopped. Presently, the inspector returned from the direction of the intensive care ward with an oddly stiff, sullen expression on his face. Everyone crowded in around him.

"Hey, Inspector!" called one of the reporters. "Ms. M was in hysterics! Has she calmed down any?"

The inspector glared back at all of them silently.

"How about it? Can we get a direct interview tomorrow?"

"That won't be possible," the inspector said through twisted lips. "Ms. M is dead."

"What?" Reflexively, the reporters all looked at one another. "But the doctor said she was completely safe now."

"But just now, she died." The inspector's face was shaded with gloom. "It wasn't due to her injuries, though; she suffered a heart attack."



This was the first case to appear in the public record of what appeared to be *it*. There may have been other prior instances that were ruled simple heart attacks or written off as sudden deaths whose causes were unclear, but it is nearly certain that this case of March 13 was the first that can be pointed to as being

unmistakably *it*. This is because a written record of the investigation remains at Alfa Romeo—intended by the investigator from that company to be the last word on the matter—in which she contended that Antonio Sevellini was *already dead* before the accident. The fact that Tonio had few external injuries, and the results of the autopsy showed no internal effects of the shock that could be pointed out as a clear cause of death, hinted at this possibility. If the driver protection system that the company had labored so diligently over had proven to be useless at less than ninety kilometers per hour, it would have had a negative effect on sales from that point on. When the pathologist's statement came, it was unusually late, unusually vague, and speckled with wiggle words and obfuscations. Because of this, the company investigator decided to try to contact him to clarify some points.

She never got the chance. It appeared clear that the elderly doctor had harbored doubts about the cause of Tonio's death from the moment he had inserted his scalpel. It was learned from his assistant that the doctor had taken samples from Tonio's brain and medulla oblongata. However, before the doctor could share his thoughts with his assistant in detail, he left for Switzerland on urgent business.

Because she had another investigation to deal with herself in England, she decided to give up and retreat for a while. Several days later, she sent another telegram from her destination to Rome, requesting a meeting at his convenience. From Rome, she received an extremely simple reply.

DR. D. DIED THREE DAYS AGO.

## 2. The First Week of April

April—it was spring in the northern hemisphere, autumn in the southern hemisphere, and in Antarctica preparations were already under way for wintering.

"So who's your money on?" asked Tatsuno, the engine technician, clapping Yoshizumi on the shoulder in the passageway leading to Dome 3.

"For what?" Yoshizumi asked.

"The pennant race. The season's about to start."

"Toei in the Pacific League. And in the Central League, Hanshin."

Tatsuno grinned wryly as he wrote Yoshizumi's picks down on a list. He was editor-in-chief of the *Showa Station News*, but he also doubled as its entertainment and sports columnist. He had his ham radio operator's license, so he was able

to get news from Japan early. "I don't know about Hanshin," said Tatsuno, with a shrug of his shoulders. "I think the Giants are gonna go all the way this year."

Yoshizumi didn't really know much about baseball, or care. He was only thinking about all the machines that needed to be set up before they were snowed in for the winter—the instruments he would use to take readings of the earth's crust. Seismometers were to be set up here and there on the exposed bedrock. Equipped with transistor radios and mercury batteries, they would provide him with readings throughout the winter. He needed to decide on the setup points soon and get them installed.

"Anything unusual going on?" Yoshizumi asked Tatsuno as he was about to pass him by. Tatsuno was carrying in one hand a katakana manuscript that was apparently freshly typed. He typed one-handed when communicating on the ham radio.

"Nothing terribly interesting," Tatsuno said, raising up the manuscript a little to show him. "Another general election, and again no change in government. Influenza and polio are going around again. Aside from that, hmm, signs of a major epidemic of suspected distemper..."

"Distemper?" Yoshizumi laughed. "You mean that disease that dogs get?"

"Yeah. Since around the end of March, most of the dogs and cats in western Japan seem to have come down with it. I've got three fine hunting dogs myself, so I'm climbing the walls worrying about them."

"Dogs, eh?"

Yoshizumi thought suddenly of the dog he had been raising back home. That half-blood Akita mutt never barked, was not especially smart, and certainly wasn't brave, yet somehow there was a sense that he and the dog understood each other. That dog was already pretty old and so was sluggish. All he did was bask in the sun. It was a strange thing, but when Yoshizumi thought of that stupid dog's wet, black nose and those sleepy eyes he could barely keep open—eyes truly characteristic of Japanese mutts—he could also see the hedge of miniature orange trees that ran along one side of the doghouse, the hill climbing up out of the plum orchard, the old and weathered roof of his home peeking out from among the shrubbery surrounding it. The small white frame of his ever prim, ever proper mother also rose up before his eyes. He had asked his elderly mother, and his nephew who was in elementary school, to take care of Gonbei—that was the goofy name he had stuck on that dog. They were the only two other people Gonbei would listen to. If it was



anyone else talking, that hateful dog would put on an act of thorough incomprehension and at times be nothing but uncooperative.

"It's pretty rare for distemper to go around," said Yoshizumi. "Is it that bad?"

Tatsuno suddenly cracked up with laughter. "Well, look at the date of this paper. It's the April first edition." He was suddenly holding his stomach laughing as he waved around the kana newspaper in his hands. "I'm gonna make everyone guess which stories in here are real."

For some time afterward, Yoshizumi continued to idly reflect on the spring scenery of his hometown. About this time, the trees on the terraced hills at the gentle foot of that mountain would all be putting out buds, and the row of cherry trees that ran alongside the winding path to the headwaters would already be starting to put out leaves. But the Somei Yoshino cherry trees off away from the hills and that grove of Yaezakura cherries might be in full bloom now. The water flowing clear in that creek, the mountain and village indistinct in a thick veil of spring haze—a sky of faded indigo, the brilliant pink of the peach blossoms, white butterflies fluttering amid yellow fields of rape blossoms... Suddenly, Yoshizumi felt right at his ears the sounds of warm spring rains that watered the land as it burst forth with new grass. Of course it was just an illusion, and outside the window of the tubular passageway, the polar snow was beginning to fall without a sound.

Yoshizumi came near to the small double window that had been carefully processed with silicon so that snow wouldn't stick to either side and looked out. All that morning, the weather had been stunningly beautiful, with a sky so clear and blue it seemed as though it would sound like a gong if struck. But now it was covered with a layer of gray cloud, and like black dust, fine grains of powdery snow fell on and on, accumulating. There was no wind whatsoever now, but if the past were any guide, fierce blizzards would surely strike later. Spring in his hometown, and winter at the very ends of the earth—that Japanese spring, so soothing to his heart, was by latitude a hundred degrees away, and by distance over forty-one thousand kilometers, practically on the opposite side of this watery sphere, almost right beneath his feet. The blizzards of cherry blossoms, the crush of people at flower-viewing parties, that lighter mode of living that burst forth and overflowed in the cities, the new school year, the opening of the pro baseball season—what realistic connection was there between a world overflowing with the energy and vulgarity of these things, and life on its opposite side? Thirteen million six hundred thousand square kilometers of barren, high-uninhabited continent, violent and cruel, crying

out with the grinding and creaking and rumbling of trillions of tons of ice and snow. Aside from those people who thought about them and worried about them, what percentage of their hundred million countrymen, in the middle of that riotous spring, cared anything for the hundred who lived huddled together in the polar region? For all its being published once every two weeks, how many people read and cared about the "Antarctic Diary" that ran in the paper's arts and sciences column?

*Humans*, Yoshizumi suddenly thought as he lightly knocked on a corridor wall where reinforced plastic, insulation, and aluminum plate were all pasted together... *we live much farther apart from each other than we've always believed.*

He was thinking such things now because as his thoughts had leapt from the dog to the Japanese spring, he had remembered a certain woman who had loved that season. Shortly before he had left, he had met a reporter who had come to do a story on him. She had once been a childhood friend of his, though by the time they met again they were little more than passersby in one another's lives. She was a city girl and terribly sophisticated—a woman who preferred a quiet restaurant at two in the morning, or perhaps a rowdy bar, to roughing it in the great outdoors with a mountain climber like him.

*That's right*, Yoshizumi thought lazily, *right about now she's probably in a hotel lounge somewhere, out on the town with a bunch of cityslicker types, decked out in refined, light spring fashions and tasteful accessories. "Mr. Yoshizumi? Ah, yes. That fellow who went to Antarctica?" Would she even remember that much about me? No way!* Yoshizumi had to grimace at the rambling of his thoughts. He moved away from the window.

It was true. Humans lived much farther apart from one another than everyone imagined.

It was true that international communication networks lay wrapped around the globe like a net and relay satellites could bring the sights of European streets to viewers in New York. The net of airplane routes brought the capital of every nation to within twenty-four hours of travel time of each other, and materials and supplies moved in rapid streams, flowing daily from east to west, west to east, north to south, and back again. At the thin glass building of the United Nations gathered the representatives of ninety some-odd countries, spying on every corner of the world, arguing day and night, to the point where some people said that if France showed signs of moving in on Cuba, the neutral government of Cambodia would immediately be overthrown in a right-wing military coup d'état. If White

House aides dropped a few unofficial hints suggesting there was talk of a possible tariff hike in America, the Dow average would plummet on the Tokyo exchange right away, and if it really did get hiked, you could lose your job. Even if it didn't come to that, the effects would still be reflected in your bonus. In Roppongi, Tokyo, you could learn the stats of yesterday's Dodgers game, and in Cairo, you could learn the details of that morning's earthquake in Alaska.

However, the mass media had made the world of the twentieth century like the holes in a net, and even if people everywhere could learn about events happening all over the globe each day, there was still a regular organizational system and ranking of import in the reporting, so that things far removed from this established order tended to slip through the holes in the net.

For example...

Suppose that one fine spring morning, you find your pet Java sparrow, which had been fine the day before, lying cold on the bottom of its cage, even though you quite properly brought the cage in and put a cloth over it last night. If that were to happen, could you tie the death of your lovely pet bird to the fuss that had started ten days ago in the entertainment columns and celebrity magazines over the sudden death of "hunk of the century" Antonio Sevellini in a car crash, a death which female fans worldwide were weeping their hearts out over now?

No, this might be impossible. So let's say that one day you are suddenly informed that a friend of yours with whom you'd just shared a drink the day before had fallen flat on his face and died shortly after you'd left him, just as he had been about to climb up onto the step of a bus. Of course, you'd feel a powerful sense of your own mortality, and when you thought about the time you'd spent with the dead man, you'd probably think something like *I need to pay a little more attention to my own health*. But would you think to tie such a thing to a small article somewhere around the bottom of page two of the morning paper that read MYSTERY DISEASE IN TAIPEI—MASS HEART ATTACKS?

Most likely, nobody would.

Also, setting aside assassinations and homicides, death itself has a much smaller societal significance than you probably think. But no matter how famous and cosmopolitan the man who died was, when his death is lumped into what is in a broad sense the category of "natural death" or "death from illness," people will just lower their eyes a little and afterward wonder not about the cause of death, but about who will fill the hole this person left in society, and how society will change

as a result. Their focus will be on the problems of the living. As long as the death is not unnatural—even if the victim is on the center stage of world politics—it will be swept away using words like, “Well, when you gotta go, you gotta go,” or “Oh, that’s so sad that he died so young.” No, in this rowdy age of global civilization, “death” was hardly unusual; it was an everyday occurrence. As an experiment, let’s take the newspaper for one day and have a look at the lower portion of the society page. How many obituaries will you see on just one day? And those are just the ones who were well known enough to be mentioned in the paper. Now look up to the top of the page. Count the number of deaths from traffic accidents, fires, accidental explosions, and crime. Go a page or two farther, and read about the war in East Asia and the coup d’état, and try to estimate the number of deaths by the scale of the conflict.

That’s how many deaths appear in the newspaper in just one day. Now add in deaths from old age and disease and expand that to a global scale. Please imagine the sanitary conditions in those underdeveloped regions of the raging tropics and subtropics, and those places where there are neither medical facilities nor doctors. In advanced countries, heart disease resulting from intemperate living and cancer due to air pollution are deadly new epidemics caused by the advance of civilization. Every year, about eight hundred thousand of Japan’s one hundred million people will die—a number rivaling that of the total population of its outlying cities and towns. Fifty million people will die worldwide, out of a global population of three billion—a number about equal to the population of England.

That’s what life is like for the human race.

So when mass die-offs of field mice were seen in the Lombardia plain in northern Italy’s rice-producing region from the middle of March through the start of April, it became only a minor topic of discussion inside Italy. In Japan, one agricultural newspaper’s “Tidbits from Abroad” column gave a little bit of space to the story. It stated, “the Fiume Po briefly overflowed with dead mice floating downstream,” though that was a bit of an exaggeration. However, this column never followed up with the fact that just a little while later, the same kind of mass die-offs of field mice were witnessed in Breslau in southwest Poland all the way to the plains of Poznań. When the people of northern Italy heard about mice dying off, they were immediately visited by inauspicious thoughts of the Black Death. As you know, Boccaccio’s *Decameron* used the city of Florence as its setting. It was the site of the greatest tragedy of the 1340s, that decade in which twenty-five million

people—a quarter of the entire population of Europe—were killed by a massive epidemic of the plague.

The people were relieved when northern Italy's health authorities immediately announced that the mouse die-offs appeared to be nothing more than an epidemic peculiar to mice, and that at this time no effect on humans had been detected.

Because of this, they just couldn't make a connection between the radiating wave of unexplained deaths of sheep, goats, and cattle near the headwaters of the Fiume Po—in particular, among those that grazed in the foothills of the Alps—and the mass deaths of field mice downstream, even though both events occurred within the borders of the same country.

"Mama! I'm quitting this shepherding business and going to the city!" cried the desperate voices of countless shepherd boys. "These sheep aren't running much of a fever, and they haven't eaten any bad grass, but all of a sudden they bend their legs all the way down—like they're kneeling to pray—and just quietly die. Today alone, we lost as many as twenty. They must surely be possessed by the Devil."

It was already mid-March by the time the European Economic Community's Agriculture and Livestock Health Organization finally began to pay attention to the loss of milk cows in Switzerland and Austria, and to the strange deaths of livestock that began in Holland, Germany, and France and then began to spread everywhere. However, when things finally got serious enough to open an investigation, they could find no signs of hog cholera, fowl plague, anthrax, glanders, or *any other known* contagious disease of livestock.

At any rate, as of the middle of April awareness of the problem still went no farther than Western Europe's EEC and those associated with the livestock. Among the sheep of Australia and the milk and beef cattle in the American southwest, the signs were too small and were not yet causing any problems.



On the other hand, from around the middle of March, epidemics of influenza and polio began to be a problem for southern Italy, the rest of Europe, and central Asia. The polio and influenza that had started in central Asia—it's a strange thing, but in the periods between epidemics, the contagions that cause polio, influenza, plague, smallpox, and other serious epidemic diseases seem to mostly wait

in hiding in the Himalayan region—began to spread their black wings across the east and west more and more. Bit by bit, the westward advance of these two viral diseases proceeded, and by the beginning of April they had already reached Hong Kong. And night and day, boats and airplanes were running ceaselessly between Hong Kong and Japan...

### 3. The Second Week of April, Part 1

"Hey, Noriko," the society column's desk editor shouted across the newsroom. "You say you're headed over toward Akasaka? While you're over there, can you drop by the Ministry of Health and Welfare and ask them about this flu and polio that are going around?"

"Excuse me?" said Noriko, her eyes opening wide in surprise. "I thought I covered arts and entertainment now."

"You were on the health and medicine beat before that, weren't you?" the desk editor said with a scowl. "Help me out here, will you? Things are really busy, and two of my rookies are laid up. I hear one ran into a car—and warm as it is—the other went off skiing and broke a leg."

"Those guys. As long as there's snow somewhere, they'll get out in it." Noriko gave a little smile. "Can't you send Tame?"

"His job in the Kansai region took a little longer than expected. He'll be flying back this evening. The society page is a little sparse. There's nothing going on that's really begging to be reported. So let's go with the flu."

"Isn't it a little early for that?" Noriko said turning her head. "It's still stalled out around Taiwan, isn't it?"

"Hong Kong," the desk editor said. "But it'll be here soon. There's already a mass outbreak in Kita-Kyushu, and anyway they say this is going to be a year for big epidemics of both."

"Not again." Noriko frowned. "Flu again? And they're saying we'll have nice weather from here on."

"Please do it. Just forty lines will be plenty. Phone it in if you need to."

The weather was nice outside. A warm wind was catching up dust from the pavement. People who were already dressing quite lightly were out walking to enjoy the spring sunshine.

*Not again!* Inside the car, Noriko looked up at warm scenery and a sky

tinged reddish brown from soot and smoke and cringed. *And I come down with it so easily!*

She had come down with a terrible flu several years ago. Headache, stuffy nose, coughing, a steady fever of forty degrees, difficulty breathing, and no matter what kind of medicine she was prescribed nothing helped. She had been flat on her back for ten full days.

Whenever she thought of the difficulty of those days, the loneliness of her solitary life would come suddenly crashing in on her.

*This dust is awful!* Noriko thought, holding her breath and frowning as she rolled up the window all the way. *And these exhaust fumes. There's been a lot of fuss for some time now about this city smog causing lung cancer, but they don't reduce it in the slightest. The world isn't making much progress at all.*

There was a little time before her interview in Akasaka, so she went to the Ministry of Health and Welfare first and asked to see Mr. Shibata, a technical official whom she had often used as a source on her old beat.

"Well, hey there!" the pale, thin-faced official said, giving her that bookish smile of his. "You have returned."

"Just for today," Noriko said. "I'd like to hear about the flu and polio outbreaks."

"Oh, that?" he said as though it were nothing to be concerned about. "It's reached Tokyo already. Four hospitalized in Shinagawa."

"For what?"

"Polio. The flu arrived in Kita-Kyushu."

"What's being done about it?"

"For the polio, there's quite a lot of live vaccine ready to go. As for the flu, well..."

"Don't clam up on me. City Hall is—"

"But we have to figure out what kind of flu virus it is that's going around now." Shibata flashed another thin smile. "It isn't clear yet whether it's Type A or Type B. And this one spreads like lightning."

"Why not just prepare stocks of vaccine for both?"

"It might not help. A simple life-form like a virus can mutate very, very easily. It's fair to say it's different in nearly every epidemic. Remember the big one in 1957?"

"Yeah, the one called Asian flu?"

"Yep, that's the one. That one wasn't Type A or Type B. It was a new strain they

called Tokyo A-57. Thanks to that, it was a nightmare coming up with a vaccine for it. Kumamoto University's looking at this one for us. A fellow from the Chemo-Sero-Therapeutic Research Institute is helping out too."

"So eggs are about to get expensive again?" Noriko made a sour face. "And here they were just saying that prices would drop now that spring is here."

"Spring flus aren't easy to cure."

"Do you keep enough vaccine nowadays for Asian flu too?"

"Well, we bought three million two hundred thousand eggs back then to make just five hundred liters of vaccine." Shibata's face looked troubled. "Everybody says 'vaccine' this and 'vaccine' that, but when it comes to making the stuff, it's a whole lot of trouble. You've got to implant the strain inside an egg, and after that it takes as many as a hundred days to make the finished product. Now, our production ability is improving somewhat, but even if we used the full capacity of the whole country...I don't know if we could vaccinate even thirty percent of the population."

"How many people could you vaccinate with five hundred liters?"

"Five hundred thousand adults," he replied, rapping his desk with his knuckles. "*Five million* people got infected with Asian flu."

"Just a drop in the bucket." Noriko winced. "But oh well. You don't die from influenza, so if you just take aspirin or something..."

"Hey, this isn't a joke." Shibata's face grew a little more serious. "We'll be in trouble if former medical journalists start spreading bad info like that. Depending on the year, the death rate from influenza can actually be quite high. Especially among children and the elderly, who have weaker resistance. Even among adults, people with heart problems or complications from stuff like pneumonia have to be careful. The A-57 flu had quite a high fatality rate."

"Don't go trying to scare me," Noriko said, lighting up a cigarette. "I've been told I might have Wilson's disease, not that I really know what that means."

"Well, you should be careful, then," Shibata said teasingly. "And because it's hitting together with polio, well, if there are double infections, that's worrisome for the children."

She offered him the pack of cigarettes, but he shook his head. "I've quit for good," he said. "Didn't you quit for a while yourself?"

"The minute I quit covering medicine I went right back to it." Noriko laughed out loud. "Also, that fuss about lung cancer has died down now."



"And that's the problem with the media," he said with a laugh of his own. "As soon as the fuss dies down, they forget all about things. Things fade away as topics, but their reality goes on."

"But they say that in America, they've finally got that miracle drug for cancer, right?"

"Oh yeah...they're saying it was the Sloan-Kettering Cancer Center in New York that discovered it." Shibata said this as though it were no particularly impressive achievement. "But now they've got to get the clinical trials going for real, and they don't know what the side effects of long-term use are—you ought to be careful for another two or three years."

"Not to worry. I have a very long lifeline," Noriko said as she stood up to go. "Even cancer's become curable—I'm gonna live to be a hundred and go to Mars someday."

"Leaving already?" the technical officer said, a bit disappointed. "Just a minute; I've still got something else interesting to tell you."

"And what would that be?"

"We don't have a clear tally just yet, but lately there's been another increase in that so-called 'sudden death disease.'"

"Sudden death disease?" Noriko turned her head slightly. "That's fairly old news, isn't it? Stories about healthy people suddenly dropping dead late at night."

"Yeah, apparently exhaustion can build up in busy people and cause neurogenic heart attacks. There's been another sudden uptick in cases since the start of spring."

"I'll come by again—I've got to get to some non-clinical work now, though." Suddenly, she felt a tickle at her nostrils and sneezed lightly. "Oh, I hate this!" Noriko said, pressing a handkerchief over her nose. "I may have caught the flu just by coming here and listening to you talk about it."

"Wow! You really do have a sensitive constitution."

"Hey." Noriko turned around at the door. "We can cure cancer and we can broadcast live television worldwide, so why can't we stop something as simple as influenza?"

"That's how the world works. While we're launching rockets to Mars and spending money on our daydreams, what percentage of the world's current population do you think is adequately served by good doctors and treatment facilities? Smallpox is constantly going around in Nepal." In an ironic tone, he added, "Give us

half the budget that Defense gets every year, and there wouldn't be a single contagious disease we couldn't beat back."

When Noriko stepped outside, she could practically feel the air teeming with germs and viruses all around her. Influenza and polio infecting the air. *Can they not even exterminate the little things that go around spreading disease—the mosquitoes and flies, and even the mice?*

The sensation she had felt was soon forgotten, however, in a warm shower of spring sunlight pouring down from above, and in thoughts of a celebrity interview to be held in a swanky hotel.

So as to come to the interview fresh, Noriko first called the editorial department at her weekly and dictated the influenza story to them. Then she went to the hotel to meet an entertainer from the Kansai region who had come up to the capital.



Late that night and rather drunk, Noriko came back to her midtown apartment. She was humming as she climbed the steps to the second floor. The sticky feel of the spring night was present even in the dim hallway. She unlocked the door, but just as she was about to go inside, a small object caught against the door and was dragged across the floor. She fixed her drunken eyes on it, and when they focused on that soft little thing, her throat let loose with a high-pitched scream. Gone completely pale, Noriko slammed the door shut, and with her purse still hanging from her arm, lunged for the telephone. After ringing for a long time, someone answered the phone, and Noriko felt relief wash over her.

"Oh, thank goodness you went on back!" Noriko exhaled.

"What's the matter?" The voice on the line belonged to a slightly intoxicated TV director, from whom she had parted company only a few minutes earlier.

"Please, I am begging you, come over here now!" Noriko said, fighting back the bitter saliva that was rising back up in her throat.

"What in the world's going on? Did something happen to you?"

"Just get over here!" Her words ended in a long, loud scream that this time she couldn't hold back any longer.

"Hey!" the voice's owner shouted, surprised. "What on earth is going—"

Noriko hung up the phone and backed up against the wall.

On the *carpet* at her feet, there were more. Two more of them.



"They're just mice," the director said with a grimace.

"But I can't stand mice. And dead mice are even worse."

"Even if you didn't put out rat poison," the man said, closing the garbage chute, "somebody else in another room must have."

"Wash your hands, okay?" Noriko called from a distance. "There's cresol under the sink. Um, I'm sorry, but can you scrub here and here too?"

"Nervous, aren't we?" the man laughed as he did as she asked. The room soon smelled like a hospital. "There we go," he said. When he had finished the task, he looked around the room a little embarrassedly and wiped his palms off on his hips.

"Thank you very much. Wait just a minute." Noriko, finally relaxed, took off her suit jacket. "Have some tea or something. Is brandy okay? Can you still drink?"

"Yeah," he said as though he had nothing better to do. He settled uneasily into a chair. "I can drink."

In the small hours of that night in early spring, it was very quiet. Only the tick of the clock resounded loudly in the room. Noriko set a bottle of Martell and two tulip glasses on the table, and for herself poured water from a decanter into a tumbler. The glug-glug of the water, the pop as she removed the cork, the faint chink as their two glasses met, these soft sounds made the stillness of the night all the more apparent. The two of them seemed to have lost any reason to speak. They sat facing one another and raised their glasses without a word. As soon as the rich, fragrant smell of the Martell hit her nostrils, she began to sneeze. *Influenza!* Noriko's body went stiff. *Influenza...*

Such a trivial thing was oddly frightening tonight. Suddenly, a dog began to howl somewhere far away. It was a sad, depressing sort of cry.

Bawoo-oo...uoooo...

"I hate this," Noriko murmured unthinkingly. "I hate that sound."

"Owaaaru, towaaaru, pawawawaa," the man muttered with a smirk. "That was 'Howling at the Moon' by Hagiwara Sakutarou."

Was it a dog barking at the hazy spring moon? The howl trailed on higher and higher and then suddenly ceased.

"It's dead!" Noriko whispered as she squeezed her glass hard. "That dog is dead!"

"No it's not." The man looked at her with boredom in his eyes. "What's with you tonight?"

"But it stopped all of a sudden. That seemed different from a normal howl."

The man set aside his glass deliberately and looked at his wristwatch. It was one in the morning.

"Hey," Noriko said without looking at the man. Her upper body was pressed tightly against the back of her chair. "Don't go. Stay here tonight. I'm scared."

The man took a long, slow look at Noriko sitting in front of him. It was an appraising look, an impudent, forward look, as though he had been expecting something like this all along. Slowly, he stood up, came around the table to Noriko's side and put his hands on her shoulders. Noriko shivered slightly.

*Was the fear of mice just an act to get me over here?* The man wondered. *What is she, an old maid who can't get any without putting on some kind of song and dance? Well, if that's the case...*

Noriko took hold of the man's hands. They were bony, thoughtless hands—this director was a worthless man. She knew that until just a little while ago, he'd been wandering around doing nothing, but now he was looking at her with this smug expression on his face, full of pride and even pity, as though he fancied himself some kind of lady-killer.

Yet at that moment none of that mattered. A kind of primal terror was rising up inside of her that might best be likened to a premonition.

*I'm scared,* Noriko thought meaninglessly. Mice...howling...a hazy spring moon. The worry over disgusting plagues swirling amid the shadows of darkness. When disaster is about to strike, the females cling to the males. The man beside her was no longer a glib TV director who, while fun to be around, was really an egotistical jerk just under the surface. Instead, he was simply a male of the species, with strong, knobby hands. And from under the conscious mind of a woman who had been worn down a little by city living, there rose up a female—terrified by a presentiment of doom.

*You're trembling, aren't you,* said the eyes of the man. He was getting into quite a good mood now. *There's no need to be afraid. You may be getting up in years a bit, but I'll still treat you right.*

*Hold me tight,* Noriko thought as she buried her face in the man's chest. *Idiot! I didn't want you pawing all over me. Just hold me as tight as you can, make this shaking go away...*

In the bedroom, the man noticed a stand-up picture frame. "What's this?"

"Oh, that?" Noriko murmured while catching a breath underneath the man's weight. "He's a guy who's in Antarctica..."

The man snorted and tried to turn the picture down.

"Don't touch it!" Noriko shouted from under the man's body.

"Boyfriend?"

"No—just somebody I know."



With the lightening of the sky toward dawn, Noriko opened her eyes and shivered. The sheets were rolled down, and both of her shoulders had become as cold as ice.

*What a stupid thing*, she thought as yesterday's dreary memories came back to her. The man's impudently naked back was right in front of her nose. She pressed her lips together tightly and stared up at the ceiling, not moving her freezing, stiff upper body.

The terror was still *there*.

*But where?* It was bubbling up as cold as death in the faint odor of cresol that lingered in the room, in the pit of her stomach, the inside of her chest, around her solar plexus. And then, suddenly, another terror clamped down on her throat. The man beside her was as still as a dead man. His skin was like ice...and she couldn't hear him breathing.

*The "dropping dead" disease is going around again.*

*If he's died here...like this...right in my bed...* She was gripped with terror as she remembered that he had a wife and child.

"Hey!" she cried, shaking him as hard as she could. His head rolled limply off of the pillow. For an instant, she felt as if a bucket of ice-cold water had been thrown in her face. *This isn't happening!*

"Uhh," the man gave a slovenly groan. "C'mon, can't you lemme sleep a little longer?"

"Get out!" Noriko shouted, out of both relief and anger, as she shoved him out of bed. "The sun's coming up! Get out of here while people still won't see you leaving!"

Muttering complaints, the man got up. Then he creased his eyebrows, shook his head, and complained that his head was hurting.

As he was going out, he stopped by the door and said in a tone dripping with lover's pretension, "I'll call you at the office around noon."

*This isn't funny at all*, Noriko thought after she had turned away from the door and curled back up in her sheets. *To have a man like that—insufferable, insensitive, bloated with oh-so-modern vanity—hovering around me from now on ... And if I give him the cold shoulder, he'll probably go talking to a bunch of dirty people...*

*And so what if he does!* Noriko thought. *This is my fault, but I couldn't help it! I was really scared last night. He said he'd call at noon. I'll just have to take a long lunch.*



In the end, however, there was no need to flee the office. The promised noon-time phone call never came. While driving home in his car from Noriko's apartment, he *lost control of the car and died*.

#### 4. The Second Week of April, Part 2

Early on the morning of April 10, Tom Worth, supervisor at the Phil and Phil Poultry Farm on the outskirts of Kansas City, Missouri, found six turkey chicks lying on their sides, gasping for breath in the turkey coop of poultry house number seven.

"Ah, great," muttered Worth. "You were in such a hurry you just couldn't wait until Christmas to get yourselves stuffed."

He opened the chicken-wire door and picked up the six chicks from among many others chirping all around them.

"You eat too much, your tummy's gonna hurt. Isn't that right? We'll have to get the doctor to give you shots and check you into the hospital. Or should we have him roast you up with pink food coloring to make us some Easter turkeys?"

One of the chicks convulsed. The other chicks weakly opened their beaks, gasping. Tom Worth gave the joints of the wings a little squeeze with his thick fingertips and breathed out an overdone sigh. "Uh-oh, not much meat on you. If you stay this skinny, you won't even be worth eating. Gotta tell the doctor..."

That was when the farmer's voice suddenly stopped. He had spotted two more

chicks collapsed in the corner of the coop. Worth stuffed the chicks into his pockets and came closer.

These two were already dead.

Worth experienced a sudden, intense feeling of unease. He remembered having seen a dead pigeon sprawled out beside the hedge as he'd been walking to work. Figuring it had been brought by a cat or a dog, he hadn't paid it much mind, but—

When he came out of the coops carrying a total of eight turkey chicks, he ran into his young redheaded colleague Willie Podkin who was hurrying from the henhouse carrying a clipboard. From the look of him, something big was going on.

"Willie!"

"Willie!" Tom Worth shouted. "What's with you? Is something wrong?"

"The hens' output is way down this morning," said Willie, a thin sweat breaking out on his densely freckled face. "It'd been dropping off a little for a while now, but this morning—we're down over twenty percent all of a sudden. The hens are acting kinda funny too...I'd decided to have Doc take a look at them." Willie blinked his little eyes when he noticed the turkey chicks hanging limp in Tom's hands.

"This looks like it's gonna be bad," Tom murmured, looking down at the chicks. They didn't even have the energy to struggle. "Look, *another* one's dead."

"Some of the hens have diarrhea," Willie said in a strained tone of voice. "C'mon. Let's go call Doc right away."

"He's probably still home in bed," Tom growled.

"Ahh, Tom, you're the old hand here. What do you think? It couldn't be fowl plague, could it?"

"This seems a little different," Tom said, staring at the chicks he held firmly in his rough, strong hands. "If it was that, the symptoms would be stronger—but these are hardly running any fever."

"I'll go call him up," Willie said with a glance at his wristwatch. "It's early, but we've gotta do it. Be right back!"

As Willie set off at a run for the office, Tom admonished the chicks, rubbing them with his fingers. "Little chicks, I'll say a prayer for you," he said. "At this rate, you're gonna have to make up for our lack of Easter egg sales this year."

Tom sneezed loudly.

"Bless me!" he groaned, wiping his nose with the back of a hand that still clutched a turkey chick. "Dang, that sun is bright!"

But the sun, however, was shining at his back.

That morning, on the outskirts of Kansas City alone, nearly a dozen veterinarians were dragged out of bed by workers in the poultry industry.

Around the tenth of April, by the slimmest of chances, *it* had arrived.

*"False fowl plague?"*

The vet's eyes opened wide when he heard the news from that same poultry worker. "Are you talking about Newcastle disease? That's absurd. Every poultry worker I know mixes Newcastle vaccine with their birds' drinking water. What's that? A new strain, you say?"

After hanging up, the vet hurriedly dialed the number of the Livestock Vaccine Research Center, sliding an arm into his shirtsleeve as he did so.



Li Xulao lived in a lonely village in China's rice belt, not far from Yancheng city in Jiangsu Province. Although this retired farmer was over eighty years old now—even he didn't know his exact age—he was still an early riser. Because he had grown weak and hard of hearing in his advancing years, Li Xulao spent most of his time just sitting near the door of his house, so as not to get in the way of his son, his daughter-in-law, and his grandson, who was a member of the village's district council. Between those times when he nodded off, he would smoke—it was his only pleasure. That day, on the morning of the eleventh of April, he got up while it was still dark outside and offered up a votive light at the memorial tablet of his ancestors. When he was finished, he lit his pipe with the candle, went to the door, and sat down. When the eastern sky at last began to take on a whitish hue, a deep, milky fog rose amid the belt of rice paddies all around him, obscuring the neighborhood farmhouses and the willow trees, making them as black and indistinct as brushstrokes of India ink.

*Spring is here, Li Xulao thought as he slowly breathed in the smoke from his long khsier pipe. You feel mighty grateful for spring when you're old. When you're old, even the summers are chilly, but from here on, it ought to get better and better and better.*

The old man refilled his pipe and stroked his thin, sparse beard with a slightly trembling hand.

*The world is getting better and better too. My grandson brags about it too much, but even so things have gotten so we can even survive famines without too*



*much suffering. There are no wars now either. Bit by bit, the world is getting better. I hope I can live long enough to see my great-grandson's face...*

That was when the old man noticed something white moving down the small creek just in front of him. It was part of a network of streams that flowed among the rice paddies in the area. The water flowed so slowly that it was hard to tell if it was moving at all, but the white thing was floating along with what current there was.

"What's that?" he said to himself.

The old man might have been hard of hearing, but his vision was fairly sharp. He was about to start smoking that second pinch of tobacco when he stopped his hand and strained his eyes. Right beside the thing drifting in the creek was another, identical, white thing. They formed a pair, approaching from out of the fog, moving forward together. Moments later, more white objects just like them began to appear, one after another, from beneath that pall of fog. The old man stood up suddenly. The khsier pipe fell from his hands and made a loud crack against the ground. The old man looked around at the fog in every direction and tottered back into the house. He bowed down before the altar and broke into bitter tears.

"Father, what's happening?"

His daughter-in-law had heard his cries and was now getting up out of bed, wiping the sleep from her eyes. "What's the matter? Are you all right?"

"Something terrible is going to happen," the old man said between childlike wails. "Some terrible, terrible thing is going to happen. I wanted to live a little longer, to see this world get a little better. I wanted to eat some more good things, soft enough for an old man's teeth. I wanted to see my grandson take a bride, to see the face of my great-grandchild. But it's all over now. Something terrible is going to happen. I know."

"Are you all right?" said another voice. His grandson had gotten out of bed and come into the room to take his turn asking the question.

"The ducks are all dead. They came floating down the stream." The old man pointed outside. Still crying, he said, "I know. This is a sign that something terrible is happening. Even worse than those *Riben ping* invaders from Japan who took away my other children. I'm telling you, I know..."

The old man's grandson, who had quickly gotten into his work clothes, rushed outside. Almost right away, he came running back in. "It's true! Father, there's a big stir over at Zhang Si's place too, and at Wong's. We've been hit too!"

"All of them?" said the old man's son, who had also gotten out of bed.

"More than half are alive, but they all look sick."

"I wonder why?" Li Xulao's son tilted his head. "They were fine yesterday."

"At any rate, I'm heading to the committee meeting. I'll come right back afterward—you'd better hurry up and isolate the sick ducks."

"Something terrible is going to happen," the old man wept, his voice growing all the louder. "This is a sign. I know."

"It is not a sign," said his grandson, with eyes glinting. "It must be another plot of the American Empire. Surely you've heard how they used airplanes to drop infected insects and rats everywhere during the Korean War. There were a lot of contagious microbes spread around near Beijing. In Liaodong and Liaoxi a lot of people died of anthrax in their lungs."

"Something terrible is going to happen," the old man said, his sobs growing louder. "We'd finally made a lasting peace in this world, but now something awful is going to happen again."

The old man's grandson charged out of the house like a bullet. The others hurried outside to see about the ducks, and when he was alone in the dim house the old man crouched down before the votive light, twisting and turning his body as he cried on and on in a voice that sounded ready to expire at any moment.



It was three days later that a new strain of contagious poultry disease bore down ferociously on Japan's chicken belt in Kyushu.

In barely a single week's time—from the start of the second week of April until the weekend—it became clear that this "Tibetan flu" (named for the region where the first outbreak took place) was going to be a serious worldwide problem. This was clear from the moment people became aware of the flu strain's abnormally short incubation period and of the extremely high level of communicability that resulted from it. From February through the middle of March, the outbreaks had expanded at a comparatively leisurely tempo, but as soon as April arrived the rate of infection skyrocketed.

For microorganisms with such simple bodily structures as viruses to undergo sudden, striking changes in transmissibility in the midst of such an epidemic was as extreme a scenario as might be imagined—but it was not outside the realm of possibility. This is because of the phenomenon of so-called "subcultural change,"

an example of which is how an utterly normal type of influenza virus turned into the A1 epidemic in the years between 1945 and 1949. This virus, to which almost no one in the world had any immunity at the time, first caused a series of localized outbreaks that began all over Europe but were small enough in scale that they were hardly viewed as problematic. In 1948 and 1949, however, a major epidemic exploded across first central Europe, and then, in 1950 and 1951, throughout the Scandinavian north and England. It was believed that this had happened because the A1 virus had at first been insufficiently adapted to the human body, but as the number of infections increased, its compatibility with its host likewise improved, at last resulting in that explosive spike in the rate of infections.

For similar reasons, the Tibetan flu became a worldwide problem during that two-week period in the first half of April. During that time, the epidemic reached Ankara, Turkey, in the west, and in the east spread beyond Singapore, all the way to Hong Kong. By the time these outbreaks had become apparent, the Tibetan flu virus had already been carried to nearly all parts of the world by swift international transport and had planted its seeds everywhere.

Reports from a school in Bombay made it known that the incubation period was so brief that if a single member of a given group came down with it in the morning, nearly every member of that group would be exhibiting symptoms of influenza by evening. That meant that the incubation period wasn't much longer than a scant ten hours! Up until that time, the shortest reported incubation had been only twenty-four hours, during that great pandemic of 1918–19. Most strains of influenza have an incubation period of forty-eight hours.

This extremely short incubation period alone was sufficient to show how powerful the virus's reproductive ability was, which in turn demonstrated how aggressively communicable it was. And that meant...

This was an entirely new strain—utterly unlike any of the various types of influenza that caused outbreaks large and small almost every year. It was a new virus, against which human beings had almost nothing in the way of immunological defense.

When newspaper headlines announced an OUTBREAK OF NEW INFLUENZA, uncomfortable memories surfaced in the hearts of many who remembered the two prior pandemics of the twentieth century. The first had been the so-called Spanish flu, which had broken out in 1918—the same year that the First World War had drawn to a close—and it ravaged the entire planet. The second pandemic—the

Asian flu—was fresher in people's memories. Caused by the influenza A2 virus, it had started in 1957 and continued into the following year, traveling all around the globe. By this time, few people remained who remembered the horrors of the Spanish flu, and those who had only memories of the Asian flu—with its high rate of morbidity but relatively low number of fatalities—saw this as a rather gloomy development to be sure, but hardly a cause for alarm.

It was during this period, however, that the medical community received two deeply disturbing reports.

The first came from Italy's Consiglio Nazionale delle Ricerche, where this Tibetan flu virus had first been isolated. It said that while this new strain's virulence rivaled that of the 1918 Spanish flu, it was an entirely new genus that they had dubbed "Influenzavirus A-Minus."

The second report stated that at around the same time that this Tibetan flu had first appeared, an entirely new, extremely virulent form of Newcastle disease (also known as false fowl plague) had broken out and started spreading worldwide. The virus that caused Newcastle disease was part of the same myxovirus group that included influenza. Intensely communicable, with a high rate of mortality that ranged from twenty to one hundred percent, this disease also rendered hens incapable of laying eggs almost as soon as they contracted it. What now left the doctors speechless was that this poultry disease, which had started popping up here and there with the onset of spring, was beginning to show signs of spreading worldwide, overlapping with last winter's worldwide mumps epidemic. The egg prices that normally came down somewhat in the spring were instead skyrocketing. And that was hardly the worst of it. A hurried accounting of reports that had come in from poultry farms sent involuntary shudders down the spines of disease prevention officials—the number of fertilized eggs that died in the incubators had begun to climb precipitously in the middle of March.

What did all of this mean?

The answer was simple. The millions of fertilized eggs that were desperately needed in order to make a vaccine for this new type of influenza were about to become very hard to get.



As he peered into his microscope, Professor Kaji of Osaka University's Research Institute for Microbial Diseases muttered, "This is bad. This is very, very bad."

To stop the spread of Tibetan flu, universities and laboratories throughout Japan were working frantically on a vaccine for the influenza A-Minus virus. But more than actually working on the vaccine itself, they had been reduced to sending research staff out to secure the fertilized eggs needed to do the work. Throughout the latter half of April, shipments of chicken eggs had plummeted to two thirds of what they had been, and with the spread of Newcastle disease, further declines were expected. Already, eggs were selling for forty yen apiece on the retail market. In the poultry industry, one dealer after another was going bankrupt, watching helplessly as entire flocks were wiped out in a matter of days. The government announced that they were considering importing eggs from abroad, but already Newcastle disease had appeared in Europe and America, and with the entire world in a scramble to deal with the influenza, a ruckus over imports hardly seemed to be in the cards. On top of this, with the “new strain” of Newcastle disease, hens didn’t just stop laying eggs; many of the females thought to have acquired immunity either laid mostly dead eggs or eggs that died around the fourth day thanks to incipient infections.

Viruses, unlike bacteria, cannot reproduce outside of living cells, so unless the cells of a living embryo were present inside a developing egg—a fertilized one that had been incubating for around ten days—it was utterly impossible to grow a culture of the influenza virus inside an egg.

In a desperate effort to keep the work of producing a vaccine going, microbiologists joined forces with Health and Welfare-related offices to scrounge for duck and quail eggs. At the same time, research continued into whether or not there was anything besides the chicken egg that could function as a unit for the mass-production of viral cultures. As for growing cultures in tissue samples, it was also possible to use living human or animal cells grown in culture solution. Cells from the kidneys of monkeys were frequently used for tissue culturing, though they were hard to handle, and there was not sufficient time to gather enough to produce millions of doses of vaccine.

In the midst of such a furor, Professor Kaji was attempting to isolate the Tibetan flu virus from the lung tissues of the first person in Osaka to have died of it. The victim was a forty-two-year-old man. Three days after contracting influenza, he had developed a violent, suffocative bronchitis and exhibited symptoms of pneumonia to go along with it. At last he had died, despite his doctor’s treatment and the medical regimen administered. The rate of death from Tibetan flu was unusually

high, especially in Asia, and reports had even come in from some places telling of victims who had died *without becoming aware of any symptoms*, so Professor Kaji had focused his attention on the first person to die of an A-Minus-type infection in Osaka. He had been a salaryman in robust health with no particular problems in any of his organs. The tissue sample from his lungs was first liquefied and then run through a super-centrifuge, to which a microbe filtration device was attached to screen out the assorted germs. The filtered, germless fluid was then transferred to a culture of cells from the kidney of a Japanese macaque that were being grown in culture solution at thirty-nine degrees Centigrade. Forty-eight hours later, human blood would be used to check for corpuscular agglutination. If the influenza virus had grown inside the living cells to surpass a density of one million virions per milliliter, a phenomenon called a “crosslinking reaction” would occur, and the corpuscles would agglutinate. By diluting the culture solution in many gradual stages and studying the degree to which the blood cells were caused to agglutinate each time, it was possible to learn the number of virus particles present. After that, the culture would be mixed with antibodies for the A-Minus type, obtained from the lymph of house mice that had been infected beforehand—to observe the neutralization effect. Prior to that, however, at the stage of estimating viral density by way of the corpuscular agglutination reaction, the professor had tried adding drops of blood not only to the culture solution, but also to the liver cells themselves. As soon as he peered into his microscope to look at that fluid, those muttered words had escaped from the professor’s mouth.

“This is bad!”

A part-time lab assistant—a young coed who had just started medical school—turned around to look at him. “What’s wrong?”

“I’m seeing *corpuscular adhesion*.”

The apple-cheeked woman peeked at what he was doing from over his shoulder. “What does that mean?” she asked. “Flu viruses always make blood condense, right?”

“This isn’t simple condensation. It’s adhesion. Have a look. You see? The corpuscles are being adsorbed onto the surface of the kidney cells.”

“No kidding,” the med student said, fascinated, as she looked through the eyepiece of the microscope.

“So basically,” Professor Kaji said, “what we’ve got here is an influenza A-Minus virus with characteristics of the HA type.”

"The HA type?" she said, her voice rising half an octave. "Is there such a thing?"

"You've never heard of it? It's the contagion that causes a bug called para-influenza. Tohoku University first discovered a strain of its virus group in 1953. It's the one that's also been called 'Sendai virus' and 'influenza D.'"

"Influenza D?" Her eyes widened at that. "Flu just has the A and B types, doesn't it?"

Professor Kaji stared for a moment at the face of this young student—if she were any younger, he thought she'd probably reek of baby formula—and then just shook his head and resignedly began to speak. "Now, see here. Just because it's called influenza, it doesn't mean there are only two kinds. What we usually call influenza actually comes in three types: A, B, and C."

"Well, I didn't know about C."

"That's because it never causes any major epidemics. It's constantly going around here and there, but most people have antibodies for it, so it doesn't get far. Even within the influenza A species, there are various types of flus, flus that people get, that horses get, that pigs get, that ducks get, et cetera et cetera."

"Wow, so even pigs can catch the flu?"

"Absolutely. Swine flu is a lot like the kinds that humans get, especially the A types. During the time of the Spanish flu, pigs frequently got ill. By the way, one relative of the influenza A virus is the virus that causes fowl plague."

"Oh? That bug that all the chickens are catching now?"

"No, what's going around now is *false* fowl plague. Newcastle disease. It's a relative of these, but a little different. By the way, even among the influenza A contagions, the antigens aren't all the same. Influenza A—the one that caused the Spanish flu back at the end of World War I, the A1 subtype which tore through Europe between '45 and '48, the A2 subtype that caused the Asian flu, and now this new A-Minus too—the structure of each and every one of these antigens is a little different from all the others."

The girl was watching his eyes carefully, a look of surprise on her face.

"In the same way, the influenza B viruses have two subtypes: the B1 and B2 forms. And in just the same way that a new strain of influenza A developed recently, it's possible as well for new B subtypes to emerge. And C subtypes too—"

"So, I see," the girl began fearfully. "The HA type is another different kind?"

"Yes, just like there's a paratyphus that acts a lot like the real typhus, there's also a disease called 'parainfluenza' that has the same kinds of effects as flu. The

HA virus is the contagion for that. The first type of parainfluenza virus includes the HA2 virus and the Sendai virus. The second type includes the California Group virus, which Dr. Robert Chanock isolated. The third type includes the HA virus and the Shipping Fever virus that hits livestock. Finally, the fourth kind is the M-25 virus. Out of all those, only HA 1 and 2 cause adsorption reactions like we're seeing here."

The girl's mouth had fallen open. "And all those are flu viruses?" she asked.

"They are. Along with mumps and Newcastle disease, they're all myxoviruses, relatives of flu."

The coed shuddered in disgust. "There are that many kinds of flu out there?"

"There are," Professor Kaji said with a glum little sniff. "I don't know why, but these myxoviruses—especially the influenza kind—mutate into new types very, very easily. The virus that causes measles? Doesn't change at all. You get it once as a child, and you'll never have it again for the rest of your life. Polio viruses have Type I, Type II, and Type III, but it's just one of them that spreads, so we don't see new kinds popping up all the time like we do with the flu."

"So this virus..." the student began as she gestured over to the microscope. "Is it Type 1 of HA? Or Type 2?"

"We don't know yet." Professor Kaji shook his head. "From here on, we've got to use all kinds of lymph to study the neutralization reactions. We'll have to order a variety of lymph samples, though my gut is somehow telling me this is a new type."

"I hate this," the student said, her face twisted like she was about to start crying. "*Yet another* flu might be going around."

"Parainfluenza usually causes serious suffocative bronchitis in children, but this one is taking down adults."

"Is it possible to get a double infection of this with influenza A-Minus?"

"Probably," Professor Kaji replied. "There have been quite a few cases where people got both A1 and A2 together. These little guys are very contagious and their rate of mortality is high, so that would make for one heck of a problem. The effectiveness of each vaccine is completely different from one to another, so we'd have to make vaccine for both the A-Minus and the HA types."

The girl sneezed.

*I wonder if she isn't predisposed to allergies?* Professor Kaji wondered. *She could be one of those types who can develop symptoms of a disease just by listening to a detailed description of it.*



"Professor, I'm going home now," she said, her face turning pale as she spoke. "My head hurts. I wonder if I've caught it just by being here."

"Did you get sick when the Asian flu was going around?"

"I did," she said, getting up. "I was still in elementary school. They closed the school, but most of us got it anyway."

"We ought to take early measures this time too," the professor murmured, "but since the new semester's just started..."



The virus Professor Kaji had discovered was a completely new kind. It was classified as a Type 6 parainfluenza and given the name HA3 Kajivirus. It caused serious respiratory disease in adult men and women. Not only was it extremely contagious, another horrifying fact soon became clear: it was confirmed that when double infections of HA3 and A-Minus viruses occurred, the rate of mortality skyrocketed to nearly seventy percent.

On April 17, Beijing's People's Republic of China Chemo-Sero Vaccine Research Institute—which had once made a spectacular contribution to virology with its isolation of the trachoma virus—pointed out the sobering fact that the current vaccine for the A-Minus virus produced *unusually weak* antibodies in human lymph. Specifically, they were saying that in order to generate sufficient immunological protection, not three but almost five times as much vaccine as was needed for A2 influenza vaccination would be necessary. Further, a person who had recovered from the disease once could be infected again, and that those who were infected would be difficult to cure. Dr. Long Hai of the same institute reported that the A-Minus virus did not grow very well inside developing chicken eggs (like all influenza viruses to date, it hardly grew at all in the allantoic cavity inside the egg, preferring the amniotic cavity that enveloped the embryo), and grew better in cells from human embryos or monkey kidneys. This finding suggested that although the new virus was close to the A group in terms of antigen structure, it might rather be more appropriate to refer to it as an altogether new "Influenza E" class of virus. Also, this was accompanied by a reference opinion that said the A-Minus influenza might easily cause not only respiratory complications, but also complications of the nervous system. The virological research department at Rhône-Poulenc, one of France's mass-producers of pharmaceuticals, reported that this "complication"

could easily cause heart attacks due to the sympathetic nervous system being affected—especially in cases where patients already had heart problems.

On April 20, the World Health Organization gave formal warning to all nations, declaring that the Tibetan flu was going to be the first global pandemic since the 1918–19 Spanish flu:

“At present, we predict that the disease caused by the influenza A-Minus virus, which is now reaching the proportions of a worldwide epidemic, will bring about serious conditions surpassing in every way the ‘Asian flu’ caused by the A2 type of 1957, and resembling or exceeding those of the 1918–19 ‘Spanish flu’ that was caused by the Type A virus. The Spanish flu peaked in three waves over a period of about one year and was contracted by over thirty percent of the entire world’s population at that time, resulting in *fifty million fatalities*, exceeding the total number of battlefield deaths in the First World War.

“Please take special note of this striking difference between the A-Minus virus and the Asian flu, which had a relatively low number of fatalities compared to infections. Influenzavirus A-Minus is a completely new genus, entirely different from any Group A virus previously known, and it is reasonable to believe that almost no one in the world has any immunity to it whatsoever. Also, it is presently known that the A-Minus species itself has many subtypes, and variation between the subtypes is great. Furthermore, the mortality rates due to A-Minus infection that have been reported up until the present time are extremely high—averaging fifteen percent and climbing as high as thirty percent. That is to say, the possibility exists that an epidemic more serious than the Tibetan flu and Spanish flu may occur.

“Furthermore, the current situation is being complicated by difficulty in securing a cultivation base for the vaccine due to NC2, the new strain of Newcastle disease now affecting the poultry industry worldwide, and also by double infections with Type 6 parainfluenza, caused by the Kajivirus discovered in Japan. In light of the seriousness of the situation insofar as it may be predicted, the World Health Organization is requesting the cooperation of every nation in establishing a temporary headquarters for combating Tibetan flu, in tracking the epidemic’s progress globally, and in committing to a general prevention framework worldwide, including measures such as the pooling of vaccines.

“In addition, we are also issuing a warning to ordinary civilians across the world, who due to past experience with previous forms of influenza may well be

taking the current epidemic too lightly. For this reason, we ask that disease prevention officials in every nation make robust efforts to keep the people informed, particularly in regard to the gravity of this situation wherein such an epidemic may occur, and to seek the cooperation of the public in preventing its spread. Due to the unfortunate overlapping of many negative factors, Tibetan flu may become a serious challenge for the entire human race."

Coming from the usually reserved WHO, the announcement contained a remarkable note of agitation. However, even in this form, its language had been somewhat softened. Dr. F. Kopecky, a WHO member from Czechoslovakia and an authority on the study of epidemic prevention systems, had urged that the draft statement include language stating that Tibetan flu would be "as serious a problem as the plague that destroyed a quarter of Europe's population in the fourteenth century." Naturally, such extreme language was not adopted out of consideration for the shock it would give the world, but those in charge of disease prevention in every country couldn't help shuddering as it hit them that the epidemic pattern of this influenza A-Minus represented an entirely new stage in the war against contagious diseases.

*Out of consideration for the shock...* Yes, when exposed to an overwhelmingly large-scale crisis, the experts often hesitated to reveal the true extent of the situation. If a truth that only the experts could discern got out into the general public, a terrible panic might ensue.

"To tell the truth, this is a body blow against the systematic prevention of epidemic diseases," said Robert McAllister, a young worker in the WHO office. His face was tense as he spread out a report tallying up data on influenza that had been sent in from all around the world. England, France, Germany, Italy, Czechoslovakia, Hungary, the countries of Scandinavia, and more.

"The mortality figures are topping twenty percent in Ukraine. And in Peru..."

In Mexico, Guatemala, and the backwaters of inner Ecuador, entire villages of Indians had been wiped out—*by the flu*.

"Mainland China is the only place we don't have any precise information on yet." To this, Bob McAllister added with just a touch of anticommunist inflection, "As always."

"Insofar as we're talking about contagious disease, China has much to command our respect," replied Dr. Albert Dubois. "Even if they tried to put a report together, that country is just too big, and too much of it is backwoods. Also, during

the Korean War, China suffered germ warfare attacks courtesy of the U.S. Air Force. The People's Republic of China is still a young country, and since that time, it's had no choice but to set aside much of its meager budget and personnel for epidemic prevention research. Now China is known as the country with the fewest number of mosquitoes and flies in the world, but this is because their Patriotic Hygiene Campaign has been going on since 1952. And those efforts at stamping out harmful insects were in fact begun as a measure for dealing with the US military's germ warfare. In those days, the US military spread germs by dropping infected mosquitoes and flies, as well as fleas, spiders, field mice, and such from airplanes."

"Pardon *me*, Doctor," McAllister said, making no effort to hide the anger in his voice. "Is there any concrete evidence of America using germ weapons during the Korean War?"

Dr. Dubois stared with light aqua eyes at this young American. Robert had wanted to be a doctor and had made it as far as intern, but he wasn't a scientist himself. He was from an old family in eastern Maryland, son of a senator, and only twenty-four.

"Bob..." Dr. Dubois said kindly, "that was ninety-eight percent factual. No, the scholars who were assigned the investigation were sure it was one hundred percent true. However, they were short two percent when it came to concrete evidence. Of the rest, half is circumstantial. Moreover, America and China were in a *de facto* state of war at the time, and China was being branded an 'enemy of the United Nations' by America's coercive tactics in the General Assembly. They blocked China from joining the UN for more than a decade afterward.

"The Communist Bloc was dancing to Stalin's tune in those days, and his hateful clashes with Truman pulled the rest of the world into a state of semi-war. So much so that even now I think of the 1950s as the Third World War. Even though there wasn't actually the full-on use of armed force, living in that world felt no different from being at war. How much weight do you think the voice of a scientist truly carried in those days? During the Second World War, even scientists from neutral countries perfected, tried to develop, or did develop terrifying weapons like America's atom bomb and Germany's V-1 flying bombs. How much use do you think it would have been if the so-called neutral countries had demanded a big investigation?"

"Doctor, have you been to China yourself to look into this?"

"I was still young," Dr. Dubois said, taking off his glasses and giving his eyes a rub. "In February of 1952, thanks to an appeal made by China's Professor Guo Moruo, the International Council for Science formed an investigative team under Dr. Needham of England to look into the facts regarding use of germ weapons during the Korean War. I accompanied Mr. Martell, who was France's representative. At the time, there was a bit of a situation, so his name was different back then, though—"

"And?" Robert said, looking at the doctor with piercing eyes.

"The investigative team released a seven hundred page report." The doctor broke off for a moment. "The verdict was *guilty*, McAllister. There was no evidence directly tying the fact that US military planes crossed over the Yalu Jiang River and invaded the northeastern district of China and the fact that immediately afterward large numbers of insects carrying infectious disease germs appeared. However, as scientists, every last person on the team was convinced. America was *guilty*."

"But you just said there was no direct evidence," Robert persisted.

"Well, not exactly. In January of 1952, two of the crew of a US B26 aircraft that was shot down near Ansan in North Korea testified that they had received training in germ warfare in Iwakuni in Japan, and in January of 1952 had dropped a total of ten germ bombs on North Korea. We of the investigative team interviewed these two American crewmen and confirmed their testimony."

"Well, they were probably tortured into confessing," Bob argued. Bob had red hair—they say that red-haired people are stubborn. "It was well known at the time that they did that kind of thing."

"Information that was of course propagated by the powers that be in America," said Dubois with a nod. "But by the time the crewmen confessed, the scheme was impossible to cover up any longer. The use of germ weapons appears to have originally begun in 1950, during the US Army's retreat.

"And it seems that POWs were experimented on at the POW internment facility on Kōje-do Island. They say that North Korean and Chinese POWs were injected with plague in landing craft just before being released. It started with smallpox in June of 1950, and between then and mid-1952, from North Korea's major cities and headwaters all the way to northeast China's farm belt, there were all kinds of contagious bacteria present in the environment: plague, anthrax, cholera, and even black powdery spot that wipes out crops, and purpura. They were being

transmitted by mice, fleas, spiders, flies, mosquitoes, clams, the feathers of birds, soybean stalks, oak leaves, maize."

McAllister had gone pale. Biting his lip, he looked up at the doctor and stared at him. "Doctor, you honestly believe the US military did all that, don't you?"

"I do, Bob," the doctor quietly answered. "Because afterward, I laid hold of almost completely conclusive evidence. By coincidence, actually. By then, however, a lot of time had passed, so I didn't make it public. At the time of the Korean War, some of the germ cultures were being grown on Japanese soil, and apparently medical professionals who had been affiliated with Unit 731 of the former Japanese Imperial Army were helping them, along with a number of scholars..."

Bob looked as though he had been struck across the face. Here was a young American who, raised in an blue-blooded family in the eastern US, had received a simple, Puritanical education. He was visibly struggling over whether to feel humiliation at Dubois's claims or to fight back: "Did such a thing even happen?"

"Even if it did, the Commies were doing worse, and that alone means America had just cause. It was unavoidable, for the sake of justice." Bob's elder brother, a Yale graduate, had been in the Peace Corps during the Kennedy years and had come home with a head full of radical ideas. But Bob was the youngest and, spoiled by his grandparents, had always resisted his brother's sophisticated, rather cynical criticisms of his country's policies. And now this...

"I don't wish to speak ill of the dead," the doctor went on, "but they say Douglas McArthur was dismissed as Supreme Commander of the UN Forces in Korea because of two problematic issues: wanting to cross the Yalu Jiang to invade China and refusing to take the potential use of nuclear weapons off the table. But from where I stood I couldn't help wondering if one more reason might be that it was about to come to light that he had used germ warfare—and had failed in it. Bob. I don't know whether he was directly responsible for this filthy business or not, but at that time he was in the highest position of responsibility for all military operations of the US Armed Forces. Or to think about it another way, one might wonder if it was because he was determined to wage full-scale war on China, atomic weapons included, that he dared to cross as deadly a bridge as that of germ warfare. Because once it came to a showdown on the mainland, germ attacks that had ended in failure would hardly seem significant."

Robert McAllister was no longer looking at the doctor. He was looking down, fiddling with his fingernails.

"I'm telling you this because I want you to understand that even in our work of health and sanitation—a mission on behalf of humanity—it is possible for political barriers to appear. Bob, every human being acts for his or her own reasons, and they are by no means fools. Far from being fools, in each and every field there are many wise people. However, when viewed from the standpoint of humanity as a whole, there are often times when what they are doing simply seems bizarre. Medical science is used both to save lives and to conduct research into these damnable germ weapons. It's the same story with atom bombs and nuclear energy. The one works to aid humanity, while the other works to strangle it. Although we are moving in the right direction, one wonders how long it will take humanity to attain a consciousness of ourselves as human beings first and foremost. I only hope that the forces seeking to strangle us don't bring about something unfortunate before then. If I may say so, Bob, a one-year moratorium on the 'political realism' that enslaves politicians of every nation would be more effective than any partial freeze on nuclear testing, don't you think?"

"Is it factual that America used *that*?" Bob said in a raspy voice.

"I'm not trying to single out your country for blame," the doctor said as he turned back to the report spread across his desk. "Listen—I was captured during the Second World War. Later on, I escaped and threw in my lot with the Maquis. I know what I'm talking about when it comes to war. The Gestapo used torture, and though there was a difference in degree, so did we. It's not just America that's preparing for germ warfare. The Soviets and the British are doing it too. My homeland is doing it. A great number of South American countries and small nations in Eastern Europe, the Middle East, and the Near East are apparently doing it too. Even NATO may be doing it. But the ones who actually put it to use were Japan in the Second World War and America in the Korean War. France apparently thought about it during the time of the Algerian Revolution. The Nazis seem to have used some biological weapons on the eastern front, but in Europe their own people were mixed in with local populations, so they put most of their efforts into poison gas instead. Even the Allied forces were about to use it. At the time of the Korean War, it's said that America used poison gas.

"At any rate, at present, a few dozen percent of the world's scientists are doing direct research into horrible weapons of mass slaughter. At this very instant, while we are working to save the entire world from epidemic disease, others in our field, working elsewhere with budgets far more generous and in facilities far more lavish

than ours, are seeking to find out if there is some way to precisely and swiftly cause a terrible epidemic; to discover if there is some way to tear the immune systems of a theoretical enemy to shreds. If their enemies would wait, so would they. This awful game is played the same way in the case of nuclear weapons. That's why the three-step across-the-board disarmament proposal by Khrushchev long ago—"

"Doctor..." Robert said sullenly. "Do you think this Tibetan flu is some country's germ warfare exercise?"

"Now that's a little too far out." Dubois finally smiled. "I don't think there's any country studying influenza, of all things, for germ warfare. Even though it's possible for frightening new strains to appear like we're seeing now...no...wait just a second..." Dr. Dubois thought for a moment. "There's an outside chance of such a possibility."

Then he started laughing. "But no, it couldn't be. First of all, influenza is—"

Suddenly there was the sound of a door opening, and when the doctor turned around the young man had vanished from the room. Dr. Albert Dubois sighed once and turned his attention to the report papers that Robert had left. He would hand these data over to the statisticians, and from there the "aspect" of this epidemic would be determined. In the science of epidemic prevention, "prevalence aspect" was a new way of thinking Dubois advocated. This method viewed the traits of an epidemic not only in terms of the contagion itself, but also in terms of societal factors, and took into account a variety of elements—pre-existing preventive systems, a society's ability to mobilize itself for prevention, how much the general populace knew about the disease, weather conditions, and more—crunching them into index numbers to determine the type of epidemic and make ongoing predictions. It was just like deciding on a general strategy in wartime.

*No, the doctor thought glumly. This may become a real war this time. Although we're lucky that this is just influenza, it's still too severe. But if this had been plague...*

The international systems for the prevention of epidemics had already taken a heavy blow. In one country, that blow had been so devastating that there was nothing that could be done now but watch as events ran their course. All of the information networks and fixed systems for worldwide general disease prevention that should have had the mobility to make mutual distribution between prevention organizations possible were still on the drawing board, and although a number of plans were now being carried out in response to the outbreak, it was worrisome



that they were not so much trying to prevent the disease from spreading as they were trying to stop it from spreading any further.

*It's a strange thing, the doctor thought, hanging his head. Mumps...Newcastle disease, parainfluenza HA3, influenza A-Minus...it's almost as if the whole myxovirus group has decided to declare war on us at once, and with most of them appearing in new strains. Could this be a coincidence? Or could some change have taken place in the common root of a virus group that has some relation to the myxovirus subset of mucopolysaccharides? The viruses for mumps and Newcastle disease are similar. Could an exchange have taken place with one of its subtypes? But the influenza virus is different in both size and shape. It doesn't seem possible that they could have undergone a common mutation. If they had, would it just be an unlucky coincidence that their timing overlapped? Or could there be something driving the whole myxovirus group?*

The doctor stood up and looked out the window to give his tired eyes some rest. There was warm afternoon sunlight out there—the sun at the height of spring, pouring down its scintillating radiance.

*There's still so much we don't understand. Maybe we'll have a better grasp on the complexities of viral evolution someday. Eventually, I'm sure we will. But it sure makes me nervous to think of how much time we'll need to find the answers. I just hope some disaster that beggars the understanding of this age won't come while we still lack them.*

The doctor shook his head and stood up. Somehow, he felt like something of a fatalist today. It was probably because he'd buttonholed that young fellow and then given him a speech about germ warfare.



Against the vicious onslaught of this new type of influenza, the worldwide forces of disease prevention turned their efforts from methods of vaccine production that depended on fertilized eggs toward those requiring tissue culture to better make preparations for the long hard battle ahead. They did not yet realize, however, that one more truly horrific shadow remained concealed behind this Tibetan flu and was drawing ever nearer to every part of the world.

The virus! The smallest life-form on this planet—a microscopic mystery standing athwart the border between inanimate matter and life. The smallest family

of virus averaged only twenty-one millimicrons across—one fifty-thousandth of a millimeter in size. The tube-shaped tobacco mosaic virus was only a bare fifteen millimicrons in diameter. Inside it was a hole twenty angstroms in diameter containing ribonucleic acid, in which was hidden the mechanisms of life and heredity. (An angstrom is one ten-millionth of a millimeter; atoms of heavy metals are about 2.5 angstroms in diameter; the wavelength of normal light is five thousand five hundred angstroms.) Almost a century had passed since Friedrich August Johannes Loeffler and Heinrich Hermann Robert Koch in 1898 first proved that bovine hoof and mouth disease was caused by organisms smaller than the holes in a Chamberland filter, and since that time the mysterious nature of the virus had become clearer. Scientists continued to build on that research, particularly in the 1950s and 1960s, with the advent of super-magnifying electron microscopes with resolutions of five angstroms or smaller, allowing all kinds of new discoveries to be made not only in the culturing of viruses, but also in biochemistry, microbiology, molecular genetics, cancer research, and—thanks to the use of electronic calculators—statistical research. Thanks to the multidisciplinary activities within various fields of science and the development of international research organizations, science and technology had developed explosively. However, even as the scalpel of understanding had proceeded in laying bare the hidden things of the world, the complexity of the knowledge gained had grown ever deeper—deeper to a confusing degree, in fact. In particular, the Max Planck Laboratory had recently succeeded in creating a new virus by artificially changing the base distribution of nucleic acid in electrolytic fluid. Also, in a joint project of America's National Institutes of Health, Rockefeller Labs, and Tokyo University's Virus Research Lab, a bizarre phenomenon had been observed—when perfectly healthy human fetal cells that had been cultured in a sterile environment were irradiated, mutant viruses were suddenly born from the cells' nuclei.

Even as great strides were being made in the field of virology, the practical application of these discoveries was, compared to what was theoretically possible, lagging several steps behind. Medicines that could cure a wide range of viral diseases, drugs analogous to broad-spectrum antibiotics in the bacterial realm, had been sought after for a long time, but aside from the wonder drug for herpetic keratitis known as 5-iodo-2-deoxyuridine (IDU), which was discovered by Herbert E. Kaufman in 1962, no other kinds had been reported, and the clinical effectiveness of drugs being tested was still unproven. The clinical application of

a substance that interfered with the growth of viruses, called interferon, was only almost ready to break free of the experimental stage. In other words, in fighting viral infections, there was no choice but to rely on the simple method that had been around since Edward Jenner—namely, to isolate the virus, grow a culture, and make a vaccine.

Moreover, more than four hundred kinds of viruses had been discovered already, and previously unknown species were still being discovered all the time. It was a small matter for new strains to be born from known ones, and there was also plenty of possibility that in the course of producing the next generation a mutant strain might suddenly appear whose nature was completely unpredictable.

Furthermore, that “one more shadow” had a strange nature for a virus and was wearing a disguise. The fact that these were previously unknown new strains, coupled with the difficulties involved in understanding any kind of virus, meant that it took far too long for anyone to realize what was really happening.



There is nothing that we can call it except the result of unfortunate coincidence. Is it possible that so many unfortunate coincidences can pile atop one another?

Usually when something that we call a “major accident” happens, unfortunate coincidences accumulate to a nearly impossible degree, all manner of safety systems fail one after another, and the accident occurs. Go and read about the very first nuclear reactor accident in history in 1952 on Canada’s Chalk River, or about the dam that burst in France. No, even without going that far out of your way, it will be enough to think about some big train derailment that is still fresh in your memory.

Even when an accident just barely avoids becoming a terrible tragedy, all is decided by whether the switch of coincidence is turned to the left or the right. This is a very famous story, but in 1957, in the skies above North Carolina, a B-47 bomber on a training flight mistakenly dropped a hydrogen bomb. Luckily, it didn’t explode, but was it not an unfortunate coincidence to mistakenly drop such a dangerous weapon on a fertile and densely populated eastern state? Further, it was later uncovered that of the six layers of safety apparatus for preventing accidental detonation, five had been out of order, and the only thing that had prevented the

bomb from going off had been that one remaining apparatus. From a numerical point of view, that made six unlucky coincidences, including the mistake of dropping the bomb. Had it been nothing more than good fortune that had prevented the seventh unlucky coincidence that would have brought terrible tragedy? On the other hand, both the world—nature itself—and the idiosyncratic societies humans created always contained dangers such as fire, and later, gunpowder. Wasn't it just luck when the two failed to meet? Gunpowder by itself is nothing more than another common chemical compound of no danger whatsoever. By itself, it is a gritty powder that gradually deteriorates over time. A match burns with a tiny flame that flickers for only about fifteen seconds. The greatest danger it poses is that you'll burn your fingers. But when the gunpowder stored in heaps behind the world's stage coincidentally encounters it...



The disease prevention teams were so busy fighting the battle before them that they did not yet realize the shadow sneaking up behind them. Then, as is often the case with major accidents and terrible tragedies, the danger lurking in the darkness leapt out, and it became too late to stop it in the blink of an eye.

The ferocity of the Tibetan flu raised its head gradually as the northern hemisphere advanced toward its most pleasant season. The days were bright and sunny, the winds were fresh and cold, and the green leaves shone brilliantly. Television transmissions cheerfully raced hither and yon across the globe, and tourists roamed all over the world, visiting Europe and Asia and America and Africa. The large-scale recession in the Western markets had begun to improve suddenly in expectation of expanding trade between the East and West, as the across-the-board arms reductions that were planned for that year at last began to be taken into account. The big news story in April was that the Soviet Union had successfully sent a manned spaceship into lunar orbit. Day after day, the newspapers kept going on and on about the "space heroes." The president of a developing country in east Africa was assassinated, and the truce in Vietnam was on the verge of being upended by a right-wing coup d'état. May Rosalind, the television actress who starred in *The Biggest in the World* was going through a messy divorce, and in Japan, an article headlined NEW CAPITAL CITY CORRUPTION had just lit a fire under the tails of some cabinet members. At the top of the society pages were the usual

articles about heinous crimes and traffic accidents, while articles such as “XX Dead of Tibetan Flu” and “Schools Temporarily Close Nationwide” were still only beginning to garner three to five paragraphs. In the family columns, the usual “How to Prevent Colds” articles appeared, and on the second page of the Society section there appeared a spectacularly useless request from the Ministry of Health and Welfare’s Tibetan Flu Task Force, entitled “Avoid Crowds When Going Out During Golden Week.”

People still didn’t understand. Even the scientists didn’t realize what was happening.



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EARLY SPRING

1     **America**  
       **Fort Meade, Maryland**  
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In an underground room within the towering white walls of the Pentagon, at the Department of Defense, Lieutenant Colonel F—one of the bigwigs from the Defense Information Agency—was listening as one of his subordinates gave a simple report, bringing him up-to-date on the situation during the month he had been away.

“And that’s all I have that relates to China and Asia,” the administrator said, gathering up his papers while speaking in Lieutenant Colonel F’s general direction. “If I may make a blanket statement, we are in a condition of stagnation. The Chinese nuclear weapon experiments show no sign of resumption. We still seem unable to grasp very well the performance factors of Chinese-made jet bombers. In Vietnam, the CIA failed again, and in Macau two CIA operatives have gone missing.”

“And our losses?” Lieutenant Colonel F asked.

“None.”

Lieutenant Colonel F nodded and signed the form in clear, fluorescent ink.

“Next is Europe,” the administrator went on. “Or shall we do Central and South America next?”

"The latter," said Lieutenant Colonel F.

"The Cuban navy has three submarines, newly put into service. Two are used nuclear subs from the Soviet Union, and the other we're not so sure about, but it's new and seems to have been built somewhere in Eastern Europe, though there's another theory that it might be British-made. We may find out more when the analyses of our high-altitude photographs come in."

"Blasted limeys!" Lieutenant Colonel F grumbled. "Did you know they sent frogmen down at Portsmouth to check out our nuclear submarine?"

"Ancient history, sir," the administrator said with a laugh. "In Brazil, we've discovered what appears to be the headquarters of a secret military organization made up of a gang of former Nazis. Doesn't look like a very big deal, though."

Next was Europe. "We seem to have sniffed out a covert military operation of the EEC. The details will have to wait on some number-crunching; the fallout should come around next week's secret departmental meeting. That assassination in Africa has triggered a string of riots that's spreading across the eastern coast. Please see Document RU-3670-K for the particulars. In the Middle East, there isn't anything of note going on aside from a general strike in Syria. According to reports from Ankara, Plan BV8 has been deemed a failure and called off—"

"BV8?" said Lieutenant Colonel F, eyebrows drawing together. Beneath his gray-flecked blond eyebrows, his eyes grew sharp. "The army one?"

"The deal appears to have failed," said the administrator. "The go-between apparently never showed up."

"Hold on a second." Lieutenant Colonel F thought for a moment. "I'd like to hear a detailed account of what went wrong. Those spooks at the CIA couldn't have made off with it?"

"Such a thing could not have—" the administrator started to say but then shrugged. "No, I don't know."

"BV8..." Lieutenant Colonel F chewed on his mustache for a moment. "I have a bit of a connection to that one. Any other reports?"

"None, sir."

"Very well."

After the administrator had signed off on the report and left the room, Lieutenant Colonel F picked up the telephone receiver. "Get me Stanton," he said.

Moments later, the man he wanted to talk to picked up.

"Stanton? It's me. I just heard the report. You say BV8 failed? Can you tell me



all about it? You probably know, but I was in the meeting back then too. I was the one who recommended Dr. Meyer from the army lab. We're close, personally."

Lieutenant Colonel F heard a violent fit of coughing erupt on the other end of the line.

"Stanton..." Lieutenant Colonel F said, frowning. "Have you caught that horrible flu too? Didn't you get vacci—oh, you did, but it didn't work? Well then, never mind. Don't come in here to report. Don't want you spreading germs all around. Send me a full report later—a *well*-sanitized report."

There was a knock at the door, and a young clerk came in. She had just said, "Lieutenant Colonel, about the meeting this afternoon—" when she sneezed. Grabbing the edge of the table and staring down at it, F saw the white compress wrapped tightly around her neck, her watery eyes, and reddish blossoms of fever beginning to bloom in her cheeks.

"Hold it right there!" the lieutenant colonel shouted. "Turn your head away from me to speak, and don't exhale into this room!"

"But, Lieutenant Colonel, the paperwork..." The clerk spoke in a hoarse voice and with a stuffy nose. When she coughed again, it sounded rather painful. She turned sideways and blew her runny nose into a pink handkerchief. When she finally turned to face him, her nose was shining a brighter red than her hair, and tears were welling up in her eyes.

"Just how high a fever are you running?" Lieutenant Colonel F asked with the expression of one who had just bitten down on something bitter. "How about going home, soaking your feet in hot water and mustard oil, and getting some sleep? That'll do more for national defense than—"

"But, Lieutenant Colonel, everyone is sick and there are a lot of absences..." She gave a tearful sneeze. "Ah, I need to get out of here. This flu is really nasty and it lasts forever. I...this is hard...I want to take off work, but..."

"It's all right, Ms. Connelly," the lieutenant colonel said, at last softening his tone. "Leave the papers here and go. Honestly, with the flu going around like this, the Department of Defense and its duty to defend the country are being compromised."

When the clerk shut the door, Lieutenant Colonel F's right index finger suddenly shot to the bottom of his nose. For a long moment, he didn't move a muscle, but when he finally, carefully pulled his finger away, a huge sneeze erupted as though it had been waiting for the chance.

Lieutenant Colonel F unconsciously crossed himself as he swore.



**New York, East 55th Street, Saint Regis Hotel**

There was a soft knock at the door of a quite luxurious two-room suite. A rather pear-shaped man opened the door, admitting an absurdly huge man whose long face somehow resembled that of a horse.

"How about our departure?" asked the horse-faced guest as he tossed aside his hat.

"Flying out of La Guardia at nine o'clock."

"We've got three hours, then."

"Take off your coat," the fat man said, making for a bottle of wine on the table. "Have a drink. This room isn't bugged."

"Who can really guarantee that kind of thing? Almost every room in the Soviet embassy in Warsaw was bugged."

The fat man smirked and handed his visitor a glass.

"Ciao!"

"Here's mud in your eye!"

The two drank. The fat man sneezed, blowing out a little of his wine.

"You picked up a bug yourself in the Middle East, did you?" the visitor said with a laugh.

"In Armenia, actually," said the fat man, covering his face a little with his hands. "How was Vietnam?"

"A lot worse than catching a cold," said the horse-faced man, frowning. "Since at any rate, the coup d'état failed. The director was furious. The boss was replaced, and I'm headed to Africa come next month."

The suite's occupant shrugged his shoulders. "I missed out on getting my bonus too."

"You said you were competing with some guy from the DoD in Turkey?"

"And he got ahead of me," the fat man said, waving his cup around quickly as he grew red in the face. "There were a lot of things the CIA's Middle Eastern arm wasn't told. Over there, the course of political turmoil in the United Arab Republic comes before my deal..."

"Deal?"

"Yeah. The DIA was asked by some army brass to sound out that spy ring and see if it might be possible to get a certain item."

"What kind of item?" asked the horse-faced man as he poured soda into his second drink. Seven tenths bourbon, with just a dash of soda. "Not intel on nuclear missiles, surely. Not at a time of across-the-board reduction and denuclearization."

"Across-the-board arms reduction?" said the fat man, looking up at him with eyes that had been red even before he'd started drinking. "Bill...do you think such a thing is really possible?"

"The president is serious about it," Bill said, shrugging. "Demilitarization, eh? Wonder what all the big companies and the soldiers who get laid off intend to do. Even we ought to think about it..."

"That *cannot be done*," the man said, slapping his knee. "The president is a Red. He's going along with the Soviets' strategy."

"Watch what you say now, Brett."

"It can't be done, I tell you. There have been presidents before him who said pie-in-the-sky kinds of things like that, but they couldn't pull it off, now could they?"

"What're you getting at?"

"The director's against it too. As are a lot of the brass at the State Department and the Defense Department. The Senate's the same. The Joint Chiefs are furious. It can't be done, Bill. *We* absolutely cannot allow it. For example, Texa—"

"Brett," Bill said with equestrian severity. "You're being way too careless with your words!"

"Aw, who cares? Oh yeah, what were we just talking about?"

"What you were trying to get with your deal."

"Oh yeah, that." The fat man called Brett chuckled to himself. "But first, what country do you think the stolen intel came from?"

"Czechoslovakia?"

"No, Great Britain!" Brett said, chuckling some more. "I've got a lot of friends in MI6. We've even worked together on occasion. I'd love to have seen their faces."

"What was the item?"

"Now, now, wait just a minute. We knew from the start that the DIA guys were on the move, but we didn't know what it was they were after. But once a certain individual came over from the continental US and started working with them, we had a pretty good idea of what was going on."

"Who was it?"

"Research doctor by the name of Meyer," Brett said with a wink. "A scientist from Fort Detrick."

Bill whistled at that. "Germs, then?"

"Oh yeah. The British army's germ warfare lab in Porton Down. We'd gotten information ourselves—by way of the Soviets—that the Brits were apparently onto something huge. But from where the army stood, there was a bit of a reason for them to be so crazy to get it. You see, the original strain of the germ or virus or whatever it was was one that was stolen from our side at Fort Detrick."

"Well, how about that."

"I heard about it from a good friend at the FBI. Originally—get this—it came from Brooks Aerospace Medical Center, where they had some weird germs or something that had been collected in space."

"Ah, the ones that grew like crazy? That they couldn't figure out how to dispose of?"

"That's right. Apparently, they had been studying those, those whatchamacjiggers at Fort Detrick, but a little more than a year ago, they were stolen. They followed the buyers, and the trail led to Porton Down."

Brett sneezed again.

"And then?" Bill asked, pouring himself a third drink.

"The bargaining stage seems to have been going well at first, but along the way, the other side raised its price. While the DIA was dithering, the seller approached us."

"How much did they want?"

"Thirteen thousand pounds."

"Highway robbery," Bill said, making a sour face. "That won't do. They realized you were competing with the DoD guys and jacked up the price."

"Well, naturally, I asked my boss. And then he said, 'I don't mind. It'll be pay-back for when they got ahead of us in Berlin. Get it.'"

"And did you ready the cash?" Bill asked with sleepy eyes. He licked his lips at the thought. "Thirteen thousand...in real bills?"

"Of course. Unlike 'Cicero,' that spy who infiltrated the British embassy in Ankara during World War II, nothing got past these guys."

"Cicero?" laughed Bill. "That's an old story."

"At any rate, the DoD people were supposed to make the deal in Istanbul. We were waiting in Ankara. The seller talked as if he already had the merchandise in hand. England hadn't started raising any Cain yet, so it looked like everything was going perfectly. Just in case, we were on the lookout for any DIA types too, and were all ready to give them a bloody nose. However..."

"Didn't work out that way?"

"The seller suddenly announced they were pulling out of the arrangement. We thought it had been smuggled to the DIA, but that wasn't it either. Haven't heard a thing since then."

"You think they sold it to a communist country for more?"

Brett shook his head. "They weren't the type. First of all, doing that would harm the trust their customers place in their business. And besides..."

"What?"

"After they were stood up, they might have attracted the attention of more mercenary types. I think they were desperate. If they'd been able to sell it to Russia, they wouldn't have done something like that."

"That's true as well."

"Two or three days after that, a man named Karlsky who had been working at the germ warfare lab committed suicide in Brighton. Wonder if something had gone wrong...if maybe his pals had screwed up trying to get it out."

This time it was Bill the Horse-Faced who sneezed.

"Brett! You've given it to me!" he said, laughing loudly. "Hey! Maybe this Tibetan flu that's going around is really that bug you almost stole!"

"Aw, no way!" Brett started laughing too. "No way a simple flu virus is nasty enough to be used in germ warfare. Though if it was, you'd just have to make all the soldiers carry chicken soup!"

The two of them laughed together.

"So poof went your bonus. And instead of vacation, you've got to work on measures for dealing with Cuba." Bill slapped the back of his neck a couple of times and rubbed at his red face.

"I get to go to Miami, though. That's not so bad."

"It's gonna be hot every day from here on out, though." Bill frowned and loosened his collar. "Where are you headed?"

"Canada. Pugwash..."

"Odd place to go."

"Left-leaning scientists from all over the world are gathering there for a big meeting. You know the drill: 'No more war.' 'Reveal your secrets about weapons of mass destruction to the public.' That kind of thing. You've never heard of the Pugwash Conference? It's something Bertrand Russell and Einstein dreamed up and organized. This'll be the twenty-somethingth meeting of it."

"Bertrand Russell...he's that old coot from the Aldermaston Marches, right?" Brett nodded.

"So you're keeping an eye on the Pugwash Pinks, eh?"

"Busting them up a little, actually. There may be some fallings-out among them this year. Thanks to you-know-what."

"Revelation of important national defense secrets?" Brett closed his eyes and leaned his head back with a pained expression. "Scientists engaged in spying. But do you think that's gonna work this time?"

"It'll tear 'em apart," Bill said. "What's the matter? You running a fever?"

"I think I had too much to drink." Brett stood up, wobbling just a bit. "I'm gonna go cool my head."

*Well then, shall I pour myself one more or not?* Bill thought after Brett went off toward the bathroom across from the bedroom. The sound of the shower running came from the direction of the bathroom. His nose began to feel ticklish again. *You've gotta be kidding! Have I really caught it from him?*

Suddenly, a loud noise came from the shower.

"Brett? You okay in there...?" Bill's voice was slightly slurred from the alcohol. "You fall down?"

There was no answer, only the sound of the shower running. Bill unconsciously raised his head. He had the feeling he had heard Brett moaning.

Bill jumped up and ran to the bathroom. "Brett!" he shouted, banging on the door. It was locked from inside. "Are you okay? Brett?"

The sound of water running. He suddenly strained his ears. Aside from the sound of the shower, he could hear the sound of water going down the drain in the floor. Bill took a step back from the door and then slammed his body against it. It didn't budge. An instant later, he reached into his wallet, pulled out a credit card, and slid it into the crack between the door and the doorframe. The Yale lock opened, the door swung wide, and Bill saw a fat man's back, still wearing an undershirt, collapsed face-forward in the bathtub.

"Brett!"

Not bothering to turn off the shower, Bill put a hand on Brett's shoulder. As soon as he did so, Brett fell back onto the floor. His face was drawn up taut and his teeth were bared and clenched. His whole body was frozen up, and Bill couldn't feel a pulse. Brett had gone pale as a sheet. Bill, having stood up from the floor, realized that his pistol had somehow found its way into his hand. He called an ambulance

and made it look like Brett was still alive to the other people in the hotel as he had the body carried away to the police. The cause of death was a sudden myocardial infarction.

"You say he had a cold?" the pathologist asked Bill. "I don't know—the influenza going around this year is a mean one. Even affects the heart. If you catch it, drink alcohol, and then douse yourself with cold water..." The doctor sneezed. "I don't know. If you think you're catching cold, be absolutely sure to take it easy. All right?"

This time it was Bill's turn to sneeze loudly. Ultimately, he didn't go to Pugwash. This was not because of a cold, but because Brett's death, and its cause, had raised a few questions among the upper echelons.



### **Maryland, Fort Detrick**

A black Chrysler glided alongside the tall, imposing concrete wall and pulled up to the gate where a burly MP stood watch like a silent sphinx. The MP did a hasty photo check, confirming the identity of the high-ranking officer riding within. He asked the officer to wait a moment while he called inside.

"What's all this?" Lieutenant Colonel F asked the driver—a man who worked directly for the DIA. Before the front gate there were seven or eight average-looking, casually dressed people on either side of the road. They were staring intently at the front gate. Most of them were middle-aged or elderly, though there were young people and women in tennis shoes among them as well.

"They're holding a vigil, sir."

"A vigil?"

"Yes, sir."

Lieutenant Colonel F threw a hard, sharp, soldierly glance across the rabble. Three standing, two leaning against the fence, two talking, one pacing back and forth—all of them looking in his direction, at the gate of the US Army's germ warfare research center.

"What are they doing?"

"Nothing, sir. They're just standing around like that, observing."

"Observing? Observing what?"

"This building."

A faint line of irritation rose on the lieutenant colonel's forehead.

"It's already been more than seven, eight years," continued the driver, "but they're still keeping watch like that, sir. Just like that."

"In other words, they have some kind of axe to grind with the military?"

"It doesn't appear to be so. They aren't holding up placards or anything. It's just..."

"Just what?"

"Maybe they're just worried."

Lieutenant Colonel F took another look back at the civilians. The two chatting had stopped, and now they all silently stared at the gate. A heavysset old lady wearing a hat with a silly decoration came up and joined them. Caught in the line of their silent gaze, the lieutenant colonel was growing somehow more fidgety with each passing moment.

"Why doesn't somebody run them off?"

"They keep coming back even if they do. Also, since all they do is stand around and stare, we can't really stop them."

"Have there been background checks on them?"

"I'd be surprised if there hadn't been. I've heard they're just average civilians. They don't really have any kind of leader."

"They're Reds then," the lieutenant colonel said conclusively. "Pinkos at the very least." He was becoming more and more annoyed. Wasn't there some law he could use to crack down on this rabble? If this defiant mood of theirs were to infect the people here... The lieutenant colonel closed his eyes and tried to think of some way to get rid of them. What was being done here was necessary for national defense. *Nearly every country in the world is doing the same, and if America alone should fall behind in this research, we soldiers wouldn't be able to carry out our responsibilities. How can we make these sentimental, peacenik buffoons see that?*

Lieutenant Colonel F had a sudden feeling that the word "murderer" had just been shouted in his ear. He opened his eyes in surprise, but it seemed he was only hearing things. In the corner of one eye, he caught a glimpse of a girl with blonde pigtails running in the bright sunlight, shouting in a high-pitched voice. Lieutenant Colonel F stroked his mustache in irritation, but the feeling that people were staring at him through the rear window—it felt like needles sticking at the back of his head—showed no sign of abating. The guard finally waved them through. The car rolled ahead through the gate.

The people watched in silence.





NO TRESPASSING signs were posted everywhere, and in one room of the building the guards were standing watch over, Lieutenant Colonel F met with the tall, baldheaded assistant director. As a military doctor, he held the rank of brigadier general.

"Hey, there," said the assistant director. "I'd heard you were out of the office."

"I was on a fact-finding trip in Africa. I was gone for right at one month." Lieutenant Colonel F made a sour face. "It was as bad as always over there. Practically a pigsty." Lieutenant Colonel F sneezed.

"Oh, looks like it's got you too," laughed the assistant director. "Did you get your vaccination?"

"I did, but it didn't seem to do much good. Nasty colds this year."

"Say, have you fellows heard this rumor?" he asked, drawing his eyebrows a little closer. "It's going around that this Tibetan flu was caused by a virus in some country's germ warfare program."

Lieutenant Colonel F shook his head. "Civilians are saying that?"

"No, specialists, apparently."

"Malicious demagoguery." Lieutenant Colonel F remembered the vigil outside. "There are always people suggesting things like that. I'll look into it. But first of all, flu viruses are of no use in germ warfare, right?"

"No, that's not true." The assistant director put together the fingertips of both of his hands and stared at the lieutenant colonel's face. "They do have a use."

Lieutenant Colonel F frowned. "By which I take it you're studying them here?"

"Of course. The influenza virus is a mysterious little critter. It can mutate to its heart's content."

"You're not saying this Tibetan flu is—"

"Unfortunately, it doesn't appear to be one of mine. But Soviet experiments might have caused this outbreak. At any rate, a tough new strain like this has excellent strategic value." So saying, the assistant director tossed a newspaper onto the desk. "Look at this. These past two or three days, the New York Stock Exchange has been on a severe downslope. London's also down across the board. At the Tokyo Stock Exchange, a lot of the employees are absent from work, and there are signs that it may close. There are one thousand two hundred factories that have had to temporarily shut down because of this flu bug, including seventeen that are main

production plants for major corporations. Even the supervisors for the automated areas are out. Seven hundred eighty offices are having temporary closures. Sixty percent of regular flights aren't running, and the train schedules are all out of whack as well. Just in the past week, there's been a seventy-two percent spike in traffic accidents. Look at this. All of America is gradually being paralyzed by this *mere influenza*."

"National defense is—" Lieutenant Colonel F started to growl. "Huh. National defense is our job."

"We're already calling up reservists at a steady clip, aren't we?" the assistant director asked with an ironic look in his eyes. "But what're they gonna do at NORAD? They can't just swap people out on the Ballistic Missile Early Warning System crews, can they? They don't have enough people."

Lieutenant Colonel F's face grew pale. What were those clowns at the Department of Defense doing to try to deal with this? To what extent did they grasp what was going on?

"How about you people here?" Lieutenant Colonel F said, going on counteroffensive, feeling a little hot under the collar. "Have you got a plan ready for dealing with a situation like this? Is this not comparable to a scenario in which a hypothetical enemy, so to speak, has launched a germ attack against us? You all are using twenty million dollars a year. We've poured over a hundred million into this place, so tell me, what's Fort Detrick's plan for dealing with this?"

"With this? Come on. However you look at it, this is *just* a form of flu," the assistant director said, a bit taken aback. "But just in case, the Indiana production facility should be making vaccine to go around to all of the defense personnel nationwide. Only, this A-Minus vaccine for some reason doesn't have much of an effect, so they're having to produce about three times the usual amount."

"In other words, it hardly works at all, eh." Lieutenant Colonel F sneezed again.

"Anyway, is there something in particular that brings you here today?" the assistant director asked as he took a capsule of medicine out of his drawer and swallowed it.

"Yes, I want to see Meyer."

"I heard that he bungled that last job," the assistant director said in an ironic tone. He rested his finger on top of the interphone switch. "Meyer's becoming quite the neurotic," he added.

"He wasn't responsible for that."

"Well, in any case, he seems to feel morally responsible."

"Morally?"

"Yeah." A conflicted look appeared on the assistant director's face. "After all, a year and a half ago, the contagion he was working on got stolen, right?"

"Yeah..." Lieutenant Colonel F also wore a bitter expression. "His assistant walked right out with his culture medium and vanished with it. The way I hear it, a professional spy ring acted as middleman. We chased them as far as Mexico, but they slipped through our fingers in the end."

"Meyer was saying the germs they were supposed to bring back from England might be an improved strain of the ones that were taken."

"What?" Lieutenant Colonel F stared at him. "So the stolen ones...were sold to Great Britain?"

The assistant director finally pressed the interphone button. "Send in Meyer," he said as he stood. "I've got a little errand to run. You can talk to him here. Oh, and one more thing." He pointed underneath the desk. "If you want to tape him, the switch is right under here."

Lieutenant Colonel F frowned slightly. He and Meyer were uncle and nephew. *You're quite the little cynic*, he thought. *Think I'm investigating Meyer, do you?*

While he was waiting, the lieutenant colonel glanced around the room. These buildings were fairly old. At any rate, he'd heard that they had been standing for over twenty years, built in April of 1943, while World War II was still raging. Originally budgeted at twelve million dollars, with a research staff of about four thousand, they now had a yearly budget of two hundred million and over fifteen thousand workers. Facilities for field experiments existed in Mississippi and Utah, there was a production plant in Indiana, and just recently a new, secret plant had been built out in the desert.

Meyer stepped into the room. He was a tall, slender, pasty-skinned man still in his thirties. He had a sort of nervous air about him, as though he were thinking terribly hard about something. "Hey there, Ed..." assayed Lieutenant Colonel F in a friendly voice. "How are you doing? Haven't come down with that awful Dalai Lama flu have you?"

"What do you want, Uncle—" he broke off in mid-sentence, glanced around the room, and corrected himself. "I mean, Lieutenant Colonel, sir?"

"Don't worry about that," his uncle said. "The assistant director showed me where the tape recorder switch is."

Meyer returned a strained sort of smile. "Ever since that incident last year, we've been under constant surveillance. That's fine for the people who know they're being watched. But those who don't know will say bad things about their bosses and nitpick everything the Defense Department does, never knowing that what they say is being turned into 'reference material.'"

"Well, there's no way around it. I was the one who proposed it after all, in the interest of security."

Meyer lowered his eyes. "What do you want?"

"It's about that recent operation. The one that ended in failure." The muscles in his cheeks grew as tight as piano wire. "I'd like to hear your opinion as to whether or not we should try again."

"Why are you asking me?" Meyer said, turning away. "Weren't you the one who said that intelligence had been provided by career spies?"

"Yes, and afterward, when I asked your opinion about whether or not we should buy that contagion, you stepped up willingly and offered to participate in the operation."

"Because I was thinking, one little mistake and we'd be in big trouble. You needed to have a specialist along for handling it."

"I heard you knew it was an improved strain of the germs that were stolen from this lab last year," Lieutenant Colonel F said in a sharp voice. "So why didn't you say so, Ed?"

"It wasn't like I knew for certain. But I did wonder if that's what it might be after we discussed the intel your people stole from the Soviets." Meyer waved his hands around, looking annoyed. "Even with incomplete data, that germ was the first thing that came to mind. And such a specialized—"

"Should we try again, Ed?" Lieutenant Colonel F asked. He chewed on his mustache for a moment. "Is that germ so terrible that America absolutely must get it for the sake of national security? If you want it that badly, I swear to you we'll get it. There is a way."

"Please just stop!" Meyer shouted, slamming his fist down on the table. "If you can get in touch with the people in England, tell them to leave *that stuff alone*! Tell them to incinerate all of it, so not even one microbe ever gets out into the open. On second thought, no—just tell them to stop doing that kind of research altogether!"

"Whoa, Ed, settle down!"

"Listen to me! As my uncle! Those germs are *monsters*! They're not even from

this planet!" Meyer put both hands on the desk and leaned forward. "You remember, don't you? Back in '63 and '64, when the satellites were doing their bug-collecting in space? It's one of *those*. Brought back from somewhere three, five hundred kilometers above the earth's surface."

"I'm aware of that," Lieutenant Colonel F said, a little taken aback. "I hear they're still alive in the underground vault at Brooks Aerospace Medical Research Center. Several years back, I heard about the problems they were having with it growing so insanely fast."

"Even after that, there were six kinds of microbes captured and brought back from outer space, two of which were bacterial endospores," Meyer said. "These superbugs live in hard vacuum at absolute zero in a storm of cosmic radiation, and the one characteristic they all have in common is an absolutely shocking rate of growth in terrestrial environments."

Lieutenant Colonel F felt a faint chill, and not just because of the slight fever his flu was causing him. Somehow, he had a feeling that the space just in front of him was crawling with tiny, invisible microbes.

"The stolen original, RU-308, was created through the process of generational refinement from one of these space microbes. But actually, it has an even more terrifying secret."

"I don't understand scientific jargon," Lieutenant Colonel F interrupted. He didn't want his nephew talking about any "secrets" here in a room where additional recording devices might still be planted. But Meyer went on talking like a man possessed.

"What's really frightening about this is the fact that there's not a doctor in the world who knows the truth about the RU-300 series or even understands what they are. Nobody does, outside of the people in this section of this germ warfare laboratory. The microbes that were collected in space are also under a veil of military secrecy, so generally speaking, no one from the outside can come anywhere near them. You've had us studying them, sifting out what looks usable, and have only announced the existence of two of the six microbes that have been discovered. Do you understand what that means? The academic world doesn't know a thing yet about this series..."

Lieutenant Colonel F's restless eyes looked all around the room. Somehow, he had to stop Meyer from saying any more than this.

"Likewise," Meyer continued, his bloodshot eyes fixed on his uncle, "the real

secret of RU-308 isn't just that simple improvements in the laboratory increased its breeding power threefold; it's that we're trying to use a phenomenon that nobody in the fields of microbiology or genetics has even been told about. At first glance, RU-308 itself looks like nothing more than an everyday kind of coccus—harmless, but impossible to kill with antibiotics. In reality, however, this is just a front for something else. Something truly terrible."

"Edward!" the lieutenant colonel barked. "That's enough! Be quiet!"

"If this should ever get out," Meyer continued, speaking through agitated sobs. "If this should ever be used on the battlefield—a contagion that's *still completely unknown* to the world's doctors—they'd have no way of knowing what the *true* contagion really was. Unless you understand the principles of the mechanism this RU-308 uses to disguise itself, I can say with near absolute certainty that you won't be able to independently discover them. If I could announce the existence of that phenomenon to academia, I'd win the Nobel Prize."

"But we at least have vaccine for the military, don't we?" Lieutenant Colonel F said, trying to soothe him.

"Not yet," Meyer said, covering his face. "We're doing various kinds of work in tissue cultures, but there's no telling yet how long it'll take for that to translate into a mass-produced vaccine. I'm still stuck at the experimental stage, and there are only a handful of people in this place who know how powerful it is. We obviously can't take it into field-testing yet. I can't imagine what might happen if the RU-308 line was taken outside or if it leaked out of the laboratory somehow."

Lieutenant Colonel F suddenly remembered a story about a genie he'd read in *One Thousand and One Nights* as a child. A man opens a tiny little bottle lying on the seashore, and out comes a cloud-swathed genie, powerful and cruel, who plucks up the little man who'd released him from his bottle. This story made the lieutenant colonel a bit uneasy, but at the same time he found Meyer's pale, nervous visage simply ridiculous. *That takes me back. I remember thinking about that story when the first atom bomb experiment succeeded at Los Alamos, and again when the first hydrogen bomb was detonated at Eniwetok. I thought about it again when we got the ICBM, and again when the antimissile radar network was finished. But in the end, mankind somehow found a way to control all of those things. The balance of power was like a dispensation from heaven in that it made controlling them possible.*

"But at the end of the day, the British have gotten hold of it too," said the

lieutenant colonel. “And the Soviet Union—they’ve sent up several satellites capable of harvesting biological materials. More than likely, they’ve got the same kinds of bugs we do. They could be working on germ weapons even more deadly than ours. When you think about that, our most powerful means of attack becomes at the same time a defensive weapon, protecting us from the same kinds of weapons our enemies have. In other words, you’re working for the defense of our nation.”

“I...I’m scared. Lieutenant Colonel...is this really for national defense? For the balance of power? Once you start down that road, there’s no end to it. There is truly no end. We’ve already reached the saturation point with nuclear weapons. That’s why the US, Great Britain, and the Soviet Union are negotiating to eliminate them. In times like these, why do we have to keep doing this kind of dangerous work? In terms of power, nuclear weapons may have reached a saturation point, but our field is a swamp with no bottom. We can create the infinitely terrible in infinite numbers—things that the human eye can’t even see. Ever since the days of Pasteur, the whole framework of modern microbiology has been helping to manufacture these disgusting tools of murder. Our systems of learning were created in order to free human beings from death and disease. And it’s because the knowledge for fighting that fight is released to the general public that people like us can use these priceless new advances to our hearts’ content. But what we can’t do, for reasons of national security, is let anyone know just how horrifying what we’ve made here really is.”

Meyer was starting to sob now. With a dark gaze, the lieutenant colonel stood motionless, observing the state of the man.

“We receive a budget from the DoD, and with facilities and equipment vastly more luxurious than what civilian doctors have, we develop offensive weapons to keep us one step ahead of other countries. The F12 influenza virus we’ve made has much more impressive effects than that A-Minus type that’s going around right now. I’m sure you know about that *botulinus bacillus* that kills twenty-four hours after infection. A mutant strain of botulinus-K could kill two hundred twenty million people, and it’s overcome the greatest weakness of the old *botulinus bacilli*—its anaerobic nature. It won’t die in air and can even replicate in it. Do any of the world’s doctors know about this? Even our anthrax and melioidosis have toxicities and reproductive power many times what they did fifteen years ago. Aside from the eighty-six strains that aren’t, as a rule, considered biological weapons, we’ve got over sixty strains of germs and viruses that are so effective, that are so *dangerous*

we can't even use them—although we could grow them in tanks anytime we liked if the need arose...”

The lieutenant colonel quietly pressed the button on top of the desk. Biting his fist, Meyer kept talking, as if in a delirium.

“Achievements in cancer research and in molecular biology have finally given us four kinds of nucleic acid weapons adopted for standard use. The study of viruses for biological weapons use is pulling us into a veritable quagmire. The more the world's theoretical biology and therapeutic medicine advance, the more the power of biological weapons will increase. I—”

The door opened and the assistant director entered the room. With cold eyes, he watched closely as Meyer sat in his chair and continued to speak.

“Is something the matter?” he asked.

“My nephew seems to be tired,” Lieutenant Colonel F replied. “Do you think you might be able to give him a little leave? I’m asking this as a favor, myself.”

“Sure thing,” said the assistant director. “This work will wear on your nerves as well as your body. There are some dangerous critters here. I get down in the dumps all the time from trying to maintain secrecy.”

“Go back to your room, Ed,” said Lieutenant Colonel F. “Then fill out a request for leave.”

“I...” Meyer stood up and looked like he was about to start shouting.

“That’s enough already! Leave this to me!” Lieutenant Colonel F spoke in a strong voice and put a hand on his nephew’s shoulder. The assistant director opened the door for him to go.

“Get plenty of rest,” the assistant director said kindly. “Go fishing in Miami or something.”

Meyer left the room with his head hung and a dazed expression on his face. As soon as he was gone, the lieutenant colonel cocked his eye at the assistant director. “Have the security folks keep an eye on Ed, all right?”

“What for?”

“Don’t worry about ‘what for,’ just do it right away.”

The assistant director quickly gave the orders via interphone. Lieutenant Colonel F stood by the window, looking into the brightness outside. Somewhere a little bird was singing.

“What happened?” the assistant director said, his expression sullen. “He wouldn’t be convinced?”



"Didn't I just tell you? I thought this was supposed to be a private talk just now." The lieutenant colonel seemed to be hesitating as he stared out the window. "What about you? What do you think about that germ, that RU-whatchamacallit?"

"That's the one that was stolen. The 'space germ' that was brought here from Brooks. Ed was studying it." The assistant director crossed his arms. "There isn't much to talk about. If that new strain that we tried to steal from the Brits is, as Ed says, something produced from that line, our work on it is still way behind England's, and Meyer deserves a good spanking. Really, Meyer's been getting rather neurotic lately, so I can't help wondering if he has an exaggerated idea of that line's strength. In particular because he feels responsible, what with it having been stolen by an assistant he was using."

"Is he ultimately the one who has to answer for what happens in that section?"

"He is. It's experimental research, though, so there are hardly enough people in it to call it a section. Why do you ask?"

This gave the lieutenant colonel pause. He wondered—had Meyer deliberately held back on reporting the practical effectiveness of that line? Or had he in his neurosis in fact become delusional? He wasn't sure.

"Well," said the lieutenant colonel, turning decisively toward the other man. "To put it bluntly, his psychological condition is degenerating."

"You understand, I'm sure, that secrets themselves are dangerous, Lieutenant Colonel. Nothing unusual about that. You know those psych tests you DoD folks give each year to everyone in the three branches who works around nuclear weapons? Ten percent or more get tagged as 'people to watch' each year, don't they? And that's out of people who took a stringent test before they were assigned and passed it. After just one year, look how many unsuitables have turned up. It's the same thing here. If we were to do a rigid test of everyone's emotional stability, half the people here would probably be viewed as dangerous."

"Well then, that just means that testing needs to become a legal requirement for people working with gas and germ weapons too," Lieutenant Colonel F said coldly. "At any rate, the problem at the moment is Ed. We can't just leave him be. He might try to do something foolish."

"We'll watch him for a while."

"No," the lieutenant colonel said. He was a bit red in the face—possibly from fever—and was sweating a little. And back to chewing on his mustache. "I'll submit his request for leave. And on your orders, I want him to take his leave here." With

a hand that trembled slightly, he wrote something down quickly on a memo pad that was on the desk. The assistant director furrowed his brows when he caught a glimpse of it.

"Your own nephew?" he asked.

"It's exactly because he's my own nephew that I want to nip this in the bud," the lieutenant colonel said. "Regan, in consideration of our long years of friendship, listen to what I have to say. Under normal circumstances, I'd want to hand this order down to a direct subordinate in the interest of preserving national defense secrets, but this time I don't want any of this coming to light. I want the leave order to come to him from you."

"That's fine with me," said the assistant director. "And I have authority to have the security guys here watch him."

"Tell his wife for me," the lieutenant colonel said, turning away slightly, "that he's gone off to Zanzibar or somewhere again and is under orders to keep it secret."

The assistant director pressed a switch and said, "Get me Security Chief Quinlan."

While he waited, the lieutenant colonel picked up the telephone. "Yes, put me through to the army hospital," he said, and then coughed painfully. "That's right. Call up Dr. Balouse in Neurology."



Meyer's private room adjoined the laboratories in the section he ran, and when he returned to it he collapsed into his chair and held his head in his hands. The fit of agitation that had erupted moments ago had subsided somewhat, but the blood in his head was still racing. He had lived with this mental stress for a full year now and was well aware that he was near the limits of his endurance. He lifted his face and stared intently at his hands. They were trembling faintly, moving as though they were not his own.

*It's not my fault!* he screamed wordlessly. But that shout was nothing but empty hysterics.

He stared at the door that bounded off the laboratories. Beyond that perfectly normal, pale green steel door was his research lab, cluttered with flasks, microscopes, an electron microscope, and a microcomputer. A slightly scatterbrained older woman and a young assistant were working there. The area beyond,

separated by another sturdy door, was divided into a room for tissue cultures, a room for virus cultures illuminated by a blackroom lamp, and an artificially illuminated room for bacteria cultures. Within the culture bases stored inside those straight rows of glass tanks, within the artificially grown cells created for growing virus cultures, all manner of death was being produced. Each strain was isolated, subcultured, mutated by irradiation or drugs, and hybridized—it was a sea of detestable things, in which only the worst were harvested along the way. Although on the surface it bore great resemblance to the kind of medical or biological lab created to fight against death, in this laboratory, concealed within a dark and grim veil of secrecy, death itself was being created—ever swifter, fiercer, and more difficult to fight than before.

*It isn't my fault!* Meyer screamed again. He wanted to shout it out at the top of his lungs.

At last, his anxiety began to abate. His mental stress had been caused not so much by the fact that the viruses had been stolen on his watch as lab chief as by the fact that while working as a military researcher, he had been deliberately neglecting the faithful reporting of the results of his work. When a virus in the RU-300 line had been stolen by his ace assistant—who had perhaps grasped before Meyer the unusual properties of that virus—he as well as the other scientists hadn't yet understood even a fraction of the menace that could be drawn from that line. Only he had continued to trudge along, studying it merely as a part of his work. In that way, a chilling realization had slowly set in of the horror that could be grown from it. It wasn't like he had been consciously neglecting his reporting from the beginning though. As he was by nature a cautious sort of man, he had always submitted his reports with a certain reserve when it came to the results of his experiments. Somewhere along the way, however, it had suddenly hit him that he was walking along the edge of a cliff. Suppose that this line should blossom into the kind of horror that he could foresee. The military would take an interest in it. What would happen, then, if it were adopted as standard biological weaponry? No—even before then, could it even get through field-testing without any leaks?

There were still so many things that were not yet understood about the germ. For that reason, until such time as the answers became a bit clearer, he had taken great care to omit from his reports the kinds of data that could stimulate the imaginations of the top brass, that could move their index fingers toward their telephones. In any case, there had been no great expectations laid on him for this

work. The number of bacteria, *rickettsias*, and viruses was vast, and in his job of developing new strains—of selecting useful-looking ones and improving them—he was only in charge of one small part of the overall effort. It was easygoing work, wherein one success out of a hundred trials was considered a good ratio. In this way, he had gradually ended up padding his reports with more and more falsehoods, rather like a treasurer who pockets a little bit here and a little bit there, and at last digs himself a hole he can't get out of.

At the same time, this had had the unexpected effect of reawakening his lonely conscience. If he were to give an accurate report of his research, the military men would surely jump on it. They would be delighted to have a weapon that was more fearsome than either the hydrogen or neutron bomb, and moreover, completely secret. But through the contact he had had with various military men during the past four-plus years he'd worked at this laboratory, Meyer had come to have doubts about the military's powers of imagination when it came to end results. They were courageous, to be sure. Still, they were slaves of the moment and of whatever seemed "necessary" at that moment. They would dance with glee if they got their hands on the first germ weapon that, when spread from an aircraft, could have an effect equal to or greater than that of a nuclear weapon—especially with it being several thousand times cheaper to boot. Most of the germs and viruses that had thus far been available for use in warfare were known both to the enemy and the general public, and despite all the publicity and propaganda surrounding them, they just didn't have that powerful an effect when it came to actual deployments. Plague? Cholera? Anthrax and parrot fever? These things were known already. They were things that the medical community both now and in the past knew about.

But this was different. This was a child of Satan, brought back from the outer darkness beyond the atmosphere.

At some point, Meyer had bitten down on his fist hard enough to draw blood. Accompanied by an icy dread, he felt wave after wave of mental anguish come crashing down inside him from the knowledge that just now, no longer able to bear the pressure of the secrets in his heart, he had told his uncle. It was information he had not even revealed to his boss, and he had given it to his uncle of all people: a hidebound, conservative soldier who worked for the Department of Defense Intelligence Agency.

What would happen to him now? Would his uncle tell the assistant director? How would the assistant director take it? The assistant director had steady nerves

and a cool head, and was not so much the scholarly type as a sort of eagle-eyed public servant who missed nothing. He was more practical, relying not so much on imagination with regard to end results as on an intuition for military efficacy. As the laboratory's manager, he never missed a chance to score points with the brass.

That being the case, had he in his agitation really done something he could never take back? As long as he had been the only one who knew about the germ's effectiveness, he could have destroyed all the samples with his own hands. But now that he had talked about it, there was no chance that that sharp-nosed assistant director would quietly sit on the sidelines.

Meyer stood up and began pacing the room like a restless animal in a cage. After a moment, he ran to his desk and, with the mental action peculiar to those who are truly cornered, opened the drawer, pulled out a notepad covered with scattered marks and numbers, and tried to start doing some calculations. However, after writing only two or three numbers down, he broke his pencil with a crack. No matter how many times he did the math, the sum was still the same. No matter how many times. As he combined the numbers, tore them apart, and knitted them back together, they became a skeleton that grew into the image of a monster. Meyer had attacked the problem from every possible angle and exhausted the possibilities long ago. He had factored in the worldwide capacity for preventative measures, speeds of disease transmission, everything that might not happen, and all of the unreleased data related to epidemic disease prevention in society. He had studied the history of the spread of contagious diseases and had spoken with those who had been on the front lines—both specialists in the strategic use of germ warfare and authorities on public health. Without allowing himself to appear *too* interested, Meyer had subtly extracted information from these people about a variety of factors and had been able to make a clear prediction of what the end result would likely be.

Due to numerous factors beyond the toxicity of the contagion itself, it would first become a societal problem. First was the issue that the contagion wasn't known to civilian science. Then there was the difficulty of early identification that followed from this, the difficulty in understanding the course of its spread, the fact that the extant pharmacopeia would be useless, the fact that it had no power to reproduce, the fact that the organs in which disease would occur were the most critical ones—the RU-300 line was dangerous for all of these reasons.

*Am I too much of a pessimist?* Meyer had asked himself this hundreds of

times. *Is the pressure of being the only person who knows how scary this stuff is making me too jumpy? But the possibility is just too great that a combination of factors could align to create the worst possible outcome. No, even if all of the factors didn't cause the worst possible result, if even one of them should stick its foot out, the other factors would fall into line like dominoes...*

His uncle had said that there was a possibility that England could be re-searching the deadly possibilities of the germ. The Soviet Union as well.

Think about it that way, and the danger could have increased threefold by now. And if this was going on in all of these countries, hidden under veils of military secrecy...

*What have I created here? Oh, Lord, forgive me...*

Meyer came from a long line of Quakers, but he had never believed in God from the bottom of his heart until that moment. Now, though, he clung to God for the first time in his life, seeking solace or judgment. With his elbows on the desk, he folded his hands and leaned his forehead against them, but instead of even a faint glimpse of God, a deep, dark pit whose bottom he could not see floated before his eyes. He clenched his teeth and began to weep.

*When Fermi and Einstein fled from Europe, he thought as he wept, would those scientists have suggested the Manhattan Project to the government if they could have clearly seen what it would lead to fifteen years later? Had they been capable of imagining in complete and accurate detail the damage they would cause when the first bomb fell on Hiroshima and the second on Nagasaki? Were the politicians and the people who used them the only ones deserving of blame? To be sure, with Heisenberg in Germany and the heavy water factory in Rjukan under German control, there had been a danger that Germany would develop the atom bomb first. But was it truly possible for the scientists who had advised the government and built those bombs to escape criticism? Science is always a double-edged sword. But did the scientists who willingly put such weapons into the very hands of Mars truly feel no anguish over having cooperated? True, it's a basic tenet of warfare that you can't hold back in battle, but wasn't that all the more reason why scientists should have delayed handing over their discoveries to the politicians—at least until such time as there was little chance of them being used in the field?*

What on earth was Meyer hoping for? What was he waiting for? The many torments and hesitations that had been swirling chaotically in his heart until now

became clear, and at last he understood. Deep in his heart, he had hung his private but fervent hopes on the completion—either this summer or this fall—of an across-the-board arms reduction agreement sponsored by the United States, the Soviet Union, and Great Britain in the General Assembly of the United Nations. Although the issue of comprehensive arms reduction, the course of which had veered right and left over a long period of time, still faced entrenched resistance in the United States as well as in every nation—particularly in France and China—the limits proposed by the Soviet Union during the Kennedy-Khrushchev era of the 1960s had gradually begun to look as though they might take hold. So in the corner of Meyer's mind, he remembered the three-stage arms reduction plan that Khrushchev proposed in September of 1960 at the fifteenth General Assembly of the United Nations, whose first step—the elimination of nuclear weapons and their delivery systems—was followed by a second step that called for the complete elimination of both chemical and biological weapons. When he thought about it, if the Comprehensive Arms Reduction Treaty could be finalized, this fearsome thing could be declared a weapon and locked away, and Meyer himself would be free of the veil of state secrecy that prevented him from leaking the slightest sliver of information. He would be able to present his findings to the academic community, and he would be able to speak not only of the threat of the RU-300 line, but also of its endlessly fascinating mechanism for symbiosis with and reproduction by way of viruses—a bizarre mechanism never before seen in terrestrial bacteria. It was a mechanism that should also give a strong hint as to how viruses—life-forms that had no way of reproducing outside of living cells—had ever come to exist in the first place. Meyer's name would be cleared at last, and in academia it would even be held in high esteem.

And then just when he was seeing the light at the end of the tunnel, he had gotten sucked into this nerve-wracking spy incident and had now shot off his mouth in front of his uncle from the DIA. He wished he could have held out a little longer. It looked like it was too late for that now. The bigwigs would turn their attention once more to the RU-300 line, and this time they would realize that there were actually gaps in the reports. They might even order field tests right away. And if that happened...

Meyer looked around with a half-crazed gleam in his eyes. Once, when he was young, he had worked for the prevention of epidemic diseases in South America, a soldier in the worldwide battle against contagious disease. Thanks to that

experience, he had been able to form a clear enough mental image of how wretched the situation could become even in cases where the diseases were known quantities. Yellow fever, dengue, parrot fever, smallpox, and Q-fever—cures and vaccines and other treatments might exist for them, but once the balance of the society itself began to teeter...

When he had been on assignment, there had been a mass outbreak of a mutant paracholera in the backwaters of Bolivia, and in the mere week that passed between the outbreak's discovery and the identification of the disease, three Indian villages had been wiped out, and Meyer's team had had to go so far as to start flying in medical supplies and vaccines from all over the world in order to keep it from spreading to the capital. But this—the RU-300 line...

Meyer glanced back to the drawer he had left open, and there his gaze remained riveted. When he had been rooting around in there for his memo pad, an old piece of paper once buried in the bottom of the drawer had come up to the top. It was a pamphlet for the fifth Pugwash Conference, held in Canada in August of 1959. Nineteen fifty-nine—already more than a decade in the past. Several years ago one of the vigil regulars—a young university student—had turned up in his neighborhood and wordlessly handed him the pamphlet. He had discreetly put it away afterward. His trembling hand now took hold of that crudely made pamphlet.

The Pugwash Conferences had, in answer to the appeals of Russell and Einstein, been organized in the Canadian city of Pugwash in July of 1956 to send out the message that addressing the menace of atomic weapons and other weapons of mass destruction was a responsibility that all scientists shared and a battle that all of them must fight. The first conference had dealt with the harmful effects of radiation in the use of atomic energy, the management of atomic weapons, and the social responsibility of scientists. The second conference had been held the following year in Lac-Beauport—again in Canada. The third had been held in Vienna, and it was there that the famous Vienna Declaration, which spoke of the scientist's responsibility in relation to the history of humanity, had been made. After the pages outlining the history of the conferences up to that point, there was a section in the pamphlet about the fifth conference, which was to focus largely on chemical and biological weaponry. Topics that had been discussed at the conference included these:

- It is an open secret that chemical and biological (CB) weapons research is now under way throughout the world.



- CB weapons far more powerful than those in the past have been developed, and it is extremely dangerous to make assumptions about them based on preexisting knowledge. There are some frightening biological weapons among those that could be created according to the infection theory of cancer, which is rooted in microbial genetics and biochemistry.
- Germ contagions with abnormal routes of infection and resistance to antibiotics can be created quite easily.
- Research by Martin M. Kaplan concludes that the contagions for anthrax, botulism, brucellosis, tuberculosis, rabbit fever, adenovirus, yellow fever, Japanese encephalitis, influenza, parrot fever, and typhus are suitable for use as biological weapons.
- CB weapons are sufficiently easy to synthesize and developing countries could readily create them for offensive purposes.
- CB weapons, therefore, must not be underestimated based on present technical difficulties and their vastly inferior destructive power compared to nuclear weapons. In cases where colonies and developing countries are fighting wars for independence, where external powers are interfering in such wars, and where internal conflicts have erupted in developing countries, we cannot at present conclude that such weapons are not being used even now.
- CB weapons are inexpensive and therefore can be mass-produced. If spread effectively, their effects may be incalculable.

After this came two proposals printed in large, Gothic boldface, to which the participating scientists had signed their names.

**I. That an international treaty prohibiting the use of biological and chemical weapons be swiftly adopted.**

**II. That research in fields such microbiology, toxicology, pharmacology, chemistry, and biology be declassified and managed peacefully.**

In Meyer's own hand, key points in the pamphlet had been underlined, and in the margin he had written the following: "You're sentimental idealists who don't understand the realities of politics!"

Meyer stared intently at those letters of faded ink. Ten years ago! Ten years

ago, scientists had already foreseen the possibility that unknown biological weapons might come to be. And now, a decade later, with yearly budget increases that were followed by explosive leaps forward in molecular biology, with the wholesale adoption of genetic theory—suddenly, Meyer was struck by the smallness of his section in this huge organization—the secret of the RU-300 line was ultimately nothing more than a single discovery by his own tiny section. Within this giant military research organization, there might be much more terrifying research and terrifying results that he, in his relatively unimportant post, had never been informed of. No, even more troubling were the things that lay beyond the even higher walls of international political secrecy, moving across the world, from one country to another...

Meyer unexpectedly covered his mouth. A strong rush of vomit had come climbing up his throat. He felt the uncontrollable pressure of a spasm in his chest, and instinctively crouched over his garbage can. Once the heaving in his stomach had settled down, he had the feeling of having just made up his mind. He picked up the pamphlet, stared at it for a long moment, and then tore it up into tiny pieces, which he threw into the trash can. His fingers were trembling slightly. After that, he reached into a pile of accumulated notebooks and such and pulled out a loose-leaf binder with a brown, hand-worn suede cover and opened it. The casual manner in which it had been thrust into the stack had been anything but accidental. In the front part of it there were research notes he had written—completely unexceptional ones. Starting in the back and moving forward, the data on the RU-300 line was written in a disorderly jumble of numbers, and in notation that only he could understand. Holding the notebook, he stood up. For his leave, he would go to Canada. An article in the corner of this morning's newspaper had told him that the 12th Pugwash Conference was currently going on even now. He realized that he had decided to become the kind of sentimental idealist he had written of four years ago.

That was when there was a knock at the door.

Meyer caught his breath, closed the folder, and nervously shouted, "Who is it?"

"The assistant director wants to see you," replied the voice of Security Chief Quinlan. Meyer's face lost all its color. Why had he sent the security chief? Why not a simple phone call? Still not comprehending the situation, he reflexively released the back pages from the looseleaf folder, folded them four times, and put them in his inside jacket pocket. They felt bulky and stiff.

Outside the door stood Captain Quinlan. He was a large man, small-eyed with a massive forehead. Meyer made a point not to ask him why he was there. He

returned to the assistant director's office to find his uncle, Lieutenant Colonel F, already gone and the assistant director awaiting him with a friendly smile.

"Hey, Meyer," the assistant director said in a voice so friendly it made him squirm. "Your uncle and I were just talking, and we decided you really should go on leave effective immediately. That's an order. Get some R&R."

"Immediately?"

"Uh, before that," the assistant director said, glancing at Quinlan's face, "—and this is an order—go to the army hospital and get yourself a checkup."

"I don't feel bad at all," Meyer said. "I've actually had a checkup quite recently. And my flu shots as well."

"There's a danger your nervous exhaustion—I'm not saying you're neurotic—could cause you to have some kind of unexpected accident. You know that; you're a doctor too. I want you to have a psychological evaluation."

Meyer looked from the smooth hint of a smile on the assistant director's face to the taciturn, sleepy expression on the face of the security chief, and understood what kind of consequences were about to be called down on him thanks to his excited outburst in front of his uncle.

"Yes sir," he said. "I'll go get changed."

When he left the office, the security chief stayed behind. From the other side of the hall, however, another security officer began walking his way with a casual expression on his face. When Meyer turned into the bathroom, yet another security officer was inside, wearing an expression that seemed to say, Oh, my! What a coincidence!

"Hey there, Dr. Meyer," the security officer said with a phony smile. "Did you hear they might call off the Army-Navy game this year? They say the tackles and the wingbacks for both sides have one foot in the grave with this flu."

Paying no mind to such a half-baked attempt to set his mind at ease, Meyer went into the stall and shut the door. Flushing the toilet to hide the sound, he tore the sheets of loose leaf paper he had brought with him into pieces small enough to keep from clogging the pipe, then flushed them all away in batches one after another. When he came out, the security officer was facing the mirror above the sink. He had an odd expression on his face.

"Diarrhea," Meyer said, his tone deliberately cheerful.

As he was being taken to the car with a security officer on either side, Meyer went weak in the knees, assaulted by a feeling that he was already dead. With

languid eyes, he watched the bright roadside scenery of early summer rolling past and was suddenly struck by the oddness of that scenery.

The hospital was not all that far away, but while he was being driven there, they passed two white ambulances, their sirens blaring. Three times, he witnessed the sight of emergency vehicles pulled up in front of doorways, where stretchers draped in white cloth were being carried out from among family whose faces were covered with handkerchiefs. There were at least two traffic accidents as well. Although the sun shone the same as every year, something about the scenery was very wrong.

"Heck of a lot of accidents lately," one of the security men said to the driver. "Wonder if it's because of the sunny weather?"

Meyer's case ultimately caused no problems for the DoD. This was because the assistant director dropped dead in his bathroom at home the following day with no warning whatsoever, and five days afterward, with worsening influenza that had developed into bronchopneumonia, Lieutenant Colonel F breathed his last as well.



### **Washington, DC; the White House**

Even as Meyer was being taken away to the military hospital, the president was listening with a grave expression to a report from the secretary of defense. The secretary of the treasury was also present and wore a similarly grave expression. The strength of the Tibetan flu was greater than anticipated, and it was dealing a severe and ongoing blow to the national defense apparatus. Already, a fifth of both regular and reserve troops in the army and navy had become unfit for combat due to influenza. Vaccine production was lagging far behind demand. The virus was of a new type for which no preexisting stocks of vaccine existed, and because the vaccine being made now was weak, three times as much as usual was needed. And then there was the fact that the vaccine easily caused allergic reactions.

"There is no way we can stop it from spreading with sanitation teams alone," the secretary of defense said, his expression grave. "Using just military facilities, there's no way our vaccine production capacity can deliver what we need in time. We've commissioned a part of the work to the US Public Health Service and to university affiliates, but because of that false fowl plague the eggs are mostly useless."

"That's a very serious point," the secretary of the treasury interjected. "We need to get temporary financial assistance and a special payment for combating this epidemic to the turkey and chicken farming industries. If we don't do that, forty percent of the nation's poultry farmers will be driven to bankruptcy by summer. And even without the subsidy, given the current condition of the manufacturing sector, we're not going to be able to avoid massive inflation."

"One thing here," the secretary of defense said. "I would like to request special measures for the acquisition of vaccines for military personnel. I've brought a list of every facility in the nation where vaccine is being produced, and of those, if we can have just these reserved for military use..."

The president and the secretary of the treasury looked at one another. Over half of the universities and public and private vaccine production facilities in the country were marked on the paper.

"Ah, Mr. Secretary," the president said in a pained tone of voice, "don't you think that's a little much? I, and of course defense personnel as well, have a responsibility for the lives of all Americans. Private industry and the transportation system are getting really hammered here. And elementary school children in particular—there are so many schools that have closed, I can't remember the exact number. The mortality rate for children ten and under is especially high, and I'm getting a mountain of petitions from mothers and children all across the country saying, 'Mr. President, please give us vaccine.'"

"But this is no time to get sentimental," the secretary of defense said. His eyes were wide, desperate. "Please think about it. If we can find some way to cover for the lost force strength of the army and navy, it may still be possible to hold things together to a degree. But what about the pilots in the air force?"

The president put a finger up against his temple and sighed.

"If they're running a fever of 102 degrees or above, they can't fly their jets. I believe I asked you about this directly not long ago, but I have a report from NORAD saying that at this rate we won't be able to maintain our air defense and alert systems at regular operational levels through the end of the week. The number of bombers we can keep in a constant state of readiness is going to be cut in half by the middle of next week. The harm being done to our other maintenance and ground duty personnel has already created dangerous conditions. This is a fact. Mr. President, if you take into account how much mental stress the crews attached to the missile interception system and the retaliatory strike system are under, it's

hard to guess what kind of unexpected accidents might occur if their physical conditions are degraded by influenza."

That was something the president was thinking about too. He thought of a red switch located in a special shelter nine basement levels beneath the White House. That switch had been installed on the watch of his predecessor, an anti-Soviet hardliner. It was located behind an unobtrusive wall panel that one might not even notice at first, installed within a hidden compartment. For the current president, who was devoted to arms reduction, the switch was an abominable thing, and he had been thinking about "politically" removing it while he was in office. *If I could just push that comprehensive arms reduction treaty through...*

However, if the defense system of the country were to be endangered prior to the signing of the treaty, the president would have no choice but to think about that switch, even if doing so was unpleasant. In the event that defense system personnel were lost due to poison gas attacks—or attacks from outer space for that matter—the switch would turn control over to an entirely automated retaliatory strike system.

"The day before yesterday, I was given a report," the secretary of defense continued. "At a vital radar station in Alaska, twenty-three workers have fallen into critical condition during the past week, and four have died. That station has effectively ceased functioning. This kind of thing is spreading in every direction with tremendous speed. Even if we call up reservists, look at how the flu has spread in the civilian population. We're going to reach our limits in no time. We must take emergency measures here and now. If we don't—"

"The chairman of the Joint Chiefs of Staff made quite a few threats, I hear," interrupted the secretary of the treasury.

"Those threats stopped yesterday," the secretary of defense said with a grimace. "The chairman himself has finally come down with the flu."

"I wonder what things are like worldwide," said the president. "We haven't been getting much useful intelligence since the secretary of state came down with the flu. The wire services have been pretty mercurial lately too."

"As far as I'm aware, the whole world is under assault by Tibetan flu," said the secretary of the treasury. "The places that are getting really bad are Southeast Asia, India, and the Near and Middle East. These regions are closer to where the first outbreak occurred, so it may be that it's peaking there first. Next worse is the Far East region, including mainland China, and after that is Africa, where it's currently

encroaching inward from the coastal regions. Europe is in almost the same shape as America. Russia's being invaded from four different directions: from Europe, from the direction of the Black Sea and Caspian Sea, from Haeju in North Korea, and from the region around Ulan Bator in Mongolia. It's finally arrived with a vengeance in Central and South America. Things are really bad out there."

"What about Australia?"

"About ten years ago, at the time of the Asian flu, the defensive measures they took down there worked perfectly, but this time that doesn't appear to have been the case. At almost the same time as in New Zealand, it's breaking out in both the cities and the backwaters. I hear one tribe of Maori people has been completely wiped out."

On the president's desk, a videophone's call buzzer went off.

"It's from the Senate vice chairman," said the secretary, Ms. Maple. The president pressed the switch. No sooner had gray-haired Vice Chairman MacLean appeared via cathode ray tube than he coughed violently.

"George," the president said, "don't give me your flu through the phone! That would've been dangerous if I hadn't been vaccinated already."

"Oh, I had my shot too," the vice chairman said as he blew his nose into a handkerchief. "Ah, crap! The vaccine didn't help at all. Wonder if the nurse was watering it down?"

"Unfortunately, this vaccine doesn't work without a triple dose split over three injections," the president said with a slight chuckle. "Did you go three times?"

"The doctor said something about that, but one shot is one too many as far as I'm concerned. I'm fighting it with a secret family remedy handed down from my grandmother."

"Chicken soup?"

The vice chairman's eyes widened in surprise. "How did you know?"

"Anyway, what can I do for you?" asked the president. "The order for mass production of vaccine has already been given. The secretary of defense is here trying to skim the cream off the top, but I intend to make him wait for a bit. Is the conversion of public buildings into temporary hospital wings going smoothly?"

"There still aren't hospitals enough for all the patients who need admitting," growled Vice Chairman MacLean. "On top of that, we're starting to run short of doctors. After all, doctors and nurses catch the flu too." MacLean was serving as chairman for the Senate Special Committee on Influenza, which had been created the previous week. By having immediately drafted administrative measures for

dealing with Tibetan flu, they had been the first country to act on the warnings of the WHO. Even so, it had fallen into such a state as this.

"More importantly, Richardson," said the vice chairman, "according to an internal announcement from Rockefeller Labs, the scientists over there are saying that what's going around might not only be influenza."

"Polio?"

"Apparently not. They say that statistically speaking, the death rate with this thing is way too high. The rate of patient mortality is already greater than twenty percent. At the same time, however, even people who haven't caught it yet—and people who have caught it but still should be nowhere near death's door—are dying. They're saying the death rate for the uninfected and the just-infected is outrageously high too."

The president's brow furrowed. "So what does that mean? I've heard that this flu can easily cause croup-type pneumonia, but—"

"It seems that the scientists and doctors are saying that there's more to it than that. Considering how symptomatic heart attacks are starting to spread like wildfire, there must be another completely new contagion that's somehow been camouflaged by Tibetan flu."

Just then, the emergency phone next to the videophone rang.

"George, I'm sorry, but can you tell me about this later? That's the emergency line."

He switched off the videophone and put the other phone's receiver to his ear. The moment he did so, the president's face grew stern.

"He's what?!" the president bellowed. "And he thinks he can get away with that kind of stupid—? Get me the governor right now! If he's not there now, have him call me the minute he comes in! And tell his secretary that there's absolutely no way he's going to get away with this; I'll mobilize the army if it comes to that!"

The phone clacked as he slammed it down. The president's face was sour as he spoke: "Black neighborhoods in Alabama are on the verge of rioting," he said.

"Why?" asked the secretary of the treasury.

"They say the state government is discriminating in vaccinating its citizens. The National Guard has been mobilized and is driving the rioters away from clinics. With live ammunition."

"There's no way there'll be enough vaccine," said the secretary of defense.



"That doesn't mean we can stand by while Alabama discriminates against African-Americans."

"Mr. President," said the secretary of the treasury in a cool tone of voice. "It appears that the time has come to take our measures to the next stage."

"I know," said the president, staring intently at the faces of the two cabinet members. At last, he turned to the secretary of defense and said, "Call the vice chairman of the Joint Chiefs of Staff and tell him to come here right away. If the chairman is able, I'd like him to come here as well. If the circumstances require it, we may have to declare martial law."

"The army's special bacteriological warfare unit has had special training for wartime epidemic prevention, hasn't it?" the secretary of the treasury said to the secretary of defense. "Their whole strategy can't rest on offense alone; they must have some contingencies concerning what we should do if we were attacked, right?"

"True, but things are going to get loud and crazy if we mobilize for that," said the secretary of defense. "We'll need special orders from the president. And once we start quarantining patients by force..."

Once again, a telephone began ringing. It was the direct line to the Central Intelligence Agency. The president looked at it as though he were staring at some kind of nightmarish thing and then slowly picked it up.

"It's me. This is Richardson. What?!" The president's face went pale almost instantly. "Are you sure? What's happening at the Soviet Embassy? They're refusing visitors? What's the reaction in Europe?"

The two VIPs held their breath as they watched the president's face.

"I see. Well, keep trying to get confirmation. If this is really true..."

His sentence still unfinished, the president suddenly pressed a button on his desk.

"Get me confirmation via direct Telex to the Kremlin. Immediately. The addressee is, uhm, let's see...Vice Premier Godonov. Give my name as the sender." Between the instructions he dictated to other persons elsewhere, the president quickly turned to the two men beside him and said, "This is unconfirmed, but Sullivan's saying the Soviet premier died this morning of influenza at a health resort."

"The Soviet premier has—" shouted the defense secretary. He stopped, then began again calmly. "I don't know. Even Khrushchev was murdered once according to German disinformation."

"But this time something really does feel off. And besides—" The president

turned back to the phone. "The Kremlin doesn't answer? They're not responding to our signal? All right. Keep calling them." He set the phone back down and leaned back in his chair weakly, as though he had gone limp from exhaustion. "Has the ideal that America has pursued for the past decade—that the world has pursued for a century—just slipped through our fingers when it was finally within arm's reach?"

"Don't go weak on us," said the treasury secretary. "Even over there, the days of dictatorship are long past, and they've built a long history since changing over to collective leadership. The successor Godonov will play ball just fine."

"We can't say anything's certain yet," the president said, rubbing his face. "They say Godonov has some suspicious ties, both to the Stalinist faction and the Communist Party of China. Premier or no, he's something of an unknown quantity."

"Besides that," said the secretary of defense. "This flu may be like the plague in that it could raise tensions in international politics. We don't know what will happen at the UN General Assembly this fall."

"Ms. Maple..." the president said weakly over the interphone. "Would you call the vice president in Paris? Tell him I want him to get back to DC with all due haste."

"It's true that Godonov might not be what we're used to or what we're expecting," murmured the treasury secretary. "And we're only four months away. I wonder if maybe the disarmament treaty just went down the drain again."

"And all because of a simple flu bug?" The president practically spat out the words.

## 2. London, England

In a room at the Department of the Army sat a gaunt, spindly-legged old man and a plump middle-aged man. The old man had a drooping mustache and wore striped pants with his black overcoat. He sported a black hat, carried an old-fashioned umbrella, and was an almost comical cliché of an English gentleman. The middle-aged man wore a loose necktie around his loose collar and a slightly dirty-looking shirt with his tweed suit. The elderly man was Sir Arthur E. Lindner, director of the British Army Germ Warfare Research Laboratory. The other was Dr. James Landon, chief of a newly formed special research division called P-5.

The door opened and Sir Cronin, the well-built war minister, came in leading a short, rather plain-looking man.

"This is Major Stanley Grey," said Minister Cronin, introducing the small man. "Major, these are Sir Lindner and Dr. Landon. Major Grey is attached to the Army Intelligence Corps and says he has some questions for you regarding that incident with Professor Karlsky."

The short man called Major Grey was, true to his name, dressed in gray clothing from head to toe. He made a gesture as if to conceal his left hand, as the tip of his middle finger was missing.

"Yes, about Professor Gregor Karlsky, who committed suicide recently," Grey said, launching in immediately in an uninflected voice.

"If this is about him, we've already been over the matter many times," said Director Lindner, his displeasure evident. "He killed himself while on leave at the home of his sister-in-law in Brighton. I approved his leave because I'd had a communiqué from Landon here that he was in a state of extreme mental exhaustion and was apparently on the verge of snapping. That must be why he killed himself. We've had exactly two similar incidents before him."

"Did those previous cases also leave no note?"

"One of them died leaving a scrawled letter filled with unintelligible, youthful babblings. The other got drunk and called me at my home in the middle of the night. He said, 'Lindner, I'm about to bash my bloody head in!'" Lindner made a sour face. "People who kill themselves are not in their right mind. That man must have been beside himself with gin. He was spewing venom and filthy language at me as though he were some American sailor. Wouldn't call me 'Sir' either... So I finally said, 'Very well then, Peter, if that's what you want to do, then hurry up and get it sorted.'"

War Minister Cronin made an expression that was both bitter and amused and turned aside.

"Dr. Landon, you were Professor Karlsky's direct supervisor, weren't you?" said Grey, switching targets.

"Yes, although we were really more like colleagues," said Dr. Landon, blinking his large, childlike eyes. "We worked together to create that, er, new research group."

"Terribly important research, was it?"

"What area of research is not important?" Sir Lindner interjected, annoyed. "You've read the report from the laboratory's security detail, haven't you?"

"I read it," Major Grey said patiently, "and I thought I'd like to hear the story in a bit more detail from Dr. Landon. In particular, the more scientific aspects."

"If you're asking if the work we do at P-5 is important," Landon began with a constrained glance at Director Lindner's face, "I'd say yes, it's important. If you're asking if it's dangerous, I'd say yes, it's dangerous. This is because in our line we're dealing with unknowns as wide as the sea and as high as a mountain. Out of tens of thousands of contagions, we're looking for things that are entirely new and effective. Or to put it more accurately, we're *making them*."

"In other words, you're hunting for buried treasure?"

"Nothing so grand as that. The reality is a rather more orderly process. At any rate, the theories of contagion and heredity have leapt into the spotlight in academia recently. And the theory about cancer..."

"Cancer?" Major Grey looked shocked, as may well have been expected. "Is cancer research useful in germ warfare?"

"When it comes to new medical theories, nothing is useless." An innocent smile spread over Dr. Landon's face. "Once the cause of a given disease is nailed down, you can of course use that information to find a way to treat it, but at the same time you can use it to find ways to *cause* the disease. This is an obvious example, but in the field of pathology, it's by artificially cultivating a given disease that its cause is determined. Particularly in our field, we're keenly interested in new theories. The newness of contagion—in other words, the less likely it is that any wonder drug for it is in clinical trials, the less likely that any system of mass production is in place for any drugs or vaccines that do exist, and the less likely that your average hospital or company doctor is used to diagnosing and treating it—is what attracts our attention. We're looking for the kind of disease that's completely new, and the longer it takes them to figure out what's causing it, the more effective it is as a strategic biological weapon.

"For example, we have an improved germ strain in regular use already that produces symptoms that—given a typical diagnosis—look like anything other than acute stomach catarrh or a stomach ulcer. This germ, however, is very contagious and has a mortality rate of sixty percent."

"Cancer research..." Major Grey said with a sigh. "But cancer is humanity's last incurable disease; the whole world is desperate for the discovery of a cure."

"Well, if comprehensive disarmament comes to pass, the results our research lab has produced should be of great use in that direction," Dr. Landon said pleasantly. "However, the circumstances being what they are, that isn't possible yet. Thanks to *you people*. Every last scrap of our research is considered a military

secret. Actually, we have discovered a highly effective method for treating many cancers, but it was a subsidiary discovery unrelated to our military objectives. Also, because that treatment is connected to some extremely important characteristics of our latest germ weapons, we have been unable to announce it. But what with it being for national defense, it can't be helped, I guess."

"What kind of biowar operations can cancer research be useful for, I wonder?" inserted the war minister, apparently interested now.

"‘Nucleic acid weaponry,’ your Excellency," said Dr. Landon with just a touch of a scientist's sense of superiority detectable in his voice. In his tone was a hapless desire to tell someone about the latest fruits of his labor. "The causes of cancer were unclear for a very long time, so the theory of cellular mutation and the contagion theory were battling it out against each other. The former is the theory that the cellular system itself undergoes a sudden, malignant mutation that makes the cell destructive to the body as a whole, causing it to multiply. The latter is the theory that some unknown contagion—a virus perhaps—causes the cell to mutate. We were able to cause cancer in animals by infecting them with things like polyomavirus and Rous sarcoma virus, but in humans, we couldn't find any virus that caused cancer no matter how hard we tried. True, the virus called SV40 which monkeys get produces cancer in artificially cultured human adrenal gland cells. Once you get cancer, however, it'll never get better on its own, so human trials were out of the question." Dr. Landon pointed at his lips slightly.

"Nucleic acids, on the other hand—the genetic material that forms the core of a virus—are simple chemical substances, and it's long been known that even in crystalline form, you can inoculate living cells with them to cause both the viral disease and the free production of new live viruses. Viruses are hard to preserve in a 'living' state because you have to keep providing them with a medium of living cells or they die right away. If they die, their nucleic acids break down and lose their potency. For that reason, even the nucleic acids alone are enough to be useful as biological weapons. Chemical toxins normally require a fixed amount to be lethal, and moreover, their effectiveness is not sustained. Take the examples of G-gas—the poison gas that's been adopted as standard issue in every country starting with the Soviet Union and the USA—and carbamate, which the French use. On the point of the swiftness with which they take effect, a thirty-second exposure to a density of a hundred milligrams per cubic meter of air is one hundred percent fatal. A fierce potency to be sure, but with no communicability or ripple effect. But

nucleic acids, on the other hand—if a few ounces of dry, beautiful crystals in a small, sealed bottle were to infect a living creature, the creature's cells themselves would get sick and die, and even as this was happening, they would be producing new disease-carrying viruses in unlimited numbers. In other words, nucleic acids are self-replicating weapons."

The air in the room had somehow become unpleasant and felt almost sticky. The rather shrill, high-pitched voice in which Dr. Landon spoke so enthusiastically was only exaggerating the gloomy atmosphere, but Landon himself seemed entirely unaware of this. It made the atmosphere in the room almost grotesque. Sir Lindner's mouth was drawn down unhappily at both corners. If Major Grey was bothered, he didn't show it. His eyes were like dull circles of graphite that only stared expressionlessly at Landon's mouth.

*Perhaps this man Dr. Landon has some sort of psychological defect*, War Minister Cronin thought suddenly as he stared at the doctor, who was still going on and on with his explanations enthusiastically. He had a gloomy, ghastly job whose aim was mass slaughter. Perhaps he had developed this defect during his long years of living like Hecate in *Macbeth*—gathering the vile, the obscene, and the accursed, and simmering them into deadly brews. War Minister Cronin had had some small involvement with the production of poison gas himself, during the Second World War, and knew of at least one case in which one of the on-site managers at a secret factory had become a cheerful eccentric. Or had it perhaps been an inborn defect that had allowed him to endure in work such as this for so long?

"Ah, poor Karlsky! I hated to lose that man!" Dr. Landon said suddenly, his voice a moan. "He was the top man when it came to this sort of thing."

"Professor Karlsky had conducted research into this sort of thing?" Major Grey asked with a dull glint in his eyes.

"Yes, yes he had. When he was at the Max Planck Laboratory, he was a research assistant to the famous molecular geneticist Ludwig Leisener, who went missing in Vienna about four years ago. Anyway, since that time, Karlsky has been praised as a great genius. If he'd continued doing peaceful work, he would have surely won the Nobel Prize."

"So what exactly was Professor Karlsky working on?"

"With Leisener, he was studying the chromosomes of cancer cells and applying that work to nucleic acid weaponry." Dr. Landon glanced briefly in Director Lindner's direction once more. Sir Lindner frowned and remained still. *It should*

*be all right for him to talk a little more*, Sir Lindner thought. In front of the war minister.

"A nucleic acid weapon has only one weakness. Though it's true that it's ultimately just an unidentifiable acid when dissolved in water, once it infects the human body it begins to produce the original virus," said Dr. Landon. To make sure his meaning was fully understood, he added, "Once it becomes a living virus, the nature of the weapon will in most cases be well understood by any well-equipped physicians who encounter it. Once they make a culture of it in a tissue sample, they can see it with an electron microscope. Once they've observed the condition of the patients and the shape of the virus by way of electron microscope, they will be able to determine what kind of virus they're up against, and—well, virology is very much advanced nowadays, with stocks of vaccines for many kinds of contagious viruses being kept regularly on hand.

"The degree to which the symptoms will progress is also known somewhat, and it's not as if there are no treatments available. The replication rates and the routes of infection are also mostly known, so even when patients start turning up, you can still stop the spread of the disease by quarantining them. However! What about cancer? In cases where cancer is caused by a virus, there are situations in which the virus itself disappears as soon as the healthy cells become cancerous. Moreover, a cancer caused by a virus will persist, as the virus itself dies off. However, in some cases, irradiating the cancerous cells with X-rays causes the *original* virus to be produced. I'm talking about Rubin and Temin's famous experiment with the Rous sarcoma virus in 1963. Based on that, Professors Nishi from Kyoto University and Freeman from the University of California's Viral Research Laboratory have used statistical methods to just recently put forth the theory that cancer is caused by a nucleic acid infection—an infection that doesn't produce live viruses. This is now being pretty much borne out. What do you think this means for nucleic acid weapons?"

Though the other three men looked back at him gravely, their expressions revealed that they really had no idea.

"It was Professor Karlsky who first thought it might be possible to bypass the form of a contagion—that is to say, the live viruses—and produce replicating weapons of pure nucleic acid. And by coincidence, he was able to make exactly such a thing from a new contagion he had been ordered to study."

"Which was that MM line of germs?" Major Grey asked.

"That's right. I don't know much about it, but they say it was sold to us after being stolen from some other country. Was it the Soviet Union? Or America?"

"That's immaterial," Major Grey replied.

"Well, whichever one it was, they say it was a germ collected in outer space, don't they? Even the name our people gave the MM series reflects such an origin. The 'MM' does, after all, stand for 'Martian Murderer.'"

Dr. Landon suddenly began to chuckle, but no matter how amusing the word-play might have been, the sound of his laughter only made the mood of the place grow darker.

"That was quite an item, wasn't it?" he continued. "Something bloody incredible that had been discovered in space! On the surface, they looked like nothing more than some ordinary kind of coccus—a lot like those golden staph bacteria that cause suppurative disease. However, in an earthlike environment, these things have a tremendous rate of replication, equivalent to hundreds of times that of a regular staphylococcus. And they have two very strange properties. In mammals—we tested them on marmots, hamsters, dogs, cats, and even monkeys and horses and cows—once they got into the respiratory system, the germs themselves dissolved in an incredibly short time, leaving nothing behind. Also, there's the fact that when regular staphylococci are put together with MM series microbes, the regular germs acquire almost the same explosive rate of replication as the extra-terrestrial ones."

Dr. Landon paused briefly to catch his breath. Now he was beginning to whisper; it was the voice of a man unveiling terrible secrets. "Because of this latter phenomenon, Professor Karlsky first theorized that the MM series might be a sort of prophage. Do you know about prophages?"

The minister and Major Grey both shook their heads slightly.

"Well then, what about bacteriophages? Viruses range in size from twenty-one to three hundred millimicrons, and on average, they're no larger than one hundredth the size of an ordinary bacterium. Yet among these tiny little viruses, there are some that will attach to regular germs and consume them. The most famous ones are the T<sub>1</sub> and T<sub>2</sub> viruses that consume bacteria in the large intestine. That's why this kind of virus is called a 'bacteriophage.' However, among the germs, there are also those that are not consumed when infected by a bacteriophage, but instead just keep on replicating. Bacteriophages resemble syringes with big heads like rubber knobs on top. That's where their nucleic acid—their genetic material—is held.



There's a tube attached like a tail, and the tip of that tube has a projection and a long thread like a tentacle. Using the thread, it feels its way around looking for prey—a germ—and then attaches to it. Then, using the projection at the tip of the tube, it makes a hole in the cell wall and injects the nucleic acid that's inside its head. A rather unpleasant construction, much like the stinging cnidoblasts on a jellyfish's tentacle.

"Anyway, the germ that has been injected with the phage's nucleic acid suddenly begins acting strangely, sucking up all the nutrients it can from the surrounding environment. The chromosomes of the bacteria itself are mutated, and the bacteria begins to produce the phage's nucleic acids all by itself. The metabolic processes that should have normally been used for the bacteria's replication are diverted away from the production of new offspring and are instead spent on producing the nucleic acids of a completely separate invader, the phage. Then, after mass-producing the phage's nucleic acids, the nucleic acids then start using the cell's proteins to surround themselves with syringe-shaped sheaths just like those on the original phage. A single phage's nucleic acid can create hundreds of new phages inside a bacteria, and the host bacteria from which the energy and material for maintaining itself has been stolen finally comes apart at the seams and dies. In the case of the T<sub>2</sub> phage, the time from nucleic acid injection until the bacteria bursts open releasing hundreds of new phages is only a mere *fifteen minutes*."

Just once during this, Sir Lindner cleared his throat softly. Dr. Landon continued speaking, however, like a man possessed.

"Furthermore," he said, "there are also cases in which a bacteria infected by the very same phage doesn't replicate the phage nucleic acids and doesn't burst open either. Instead, it just keeps on replicating as it normally would. When this happens, the phage nucleic acids don't take apart the bacteria's chromosomes, but instead insert themselves into the bacteria's chromosomes, allowing the virus to hide there. Then, as the bacteria undergo many generations of replication, they transmit the phage nucleic acids to their children and grandchildren and so on. Then, if you expose the infected bacteria to some sort of stimulus—say X-rays or ultraviolet light, or to carcinogenic chemicals such as nitrogen mustard—the bacteria that had until that very moment been no different from healthy bacteria will suddenly burst open, and hundreds of phages will come pouring out. In other words, due to *genetic contamination*, these bacteria carry within themselves a factor for reproducing phages. Bacteria in such a condition are called lysogenic phages, or prophages."

"So the MM series turned out to be one of these prophages, or whatever you call them?" asked the minister.

"Actually, they did not," Dr. Landon said, eyes glistening. "The original culture base of the MM line was investigated again and again by electron microscope, but no virus was ever detected. Even so, when we filtered germ-free fluid from that culture base and transferred it to culture fluid with regular, terrestrial staphylococci, the cocci would suddenly show symptoms of MM type infection, and their rates of replication would begin to skyrocket. Karlsky, who had been doing cancer research under Dr. Leisener, realized what was happening the instant he saw it. You see, among cancers that are caused by viruses, there are cases where—even though the infectious virus completely disappeared once the cancer began—the germless filtered fluid extracted from the cancer cells can cause healthy cells to develop cancer. Because of this phenomenon, which he had observed in the carcinogenic LR12 virus discovered by Leisener, Karlsky dubbed this phenomenon 'replicating nucleic acid infection.'" Dr. Landon paused for a moment to take another quick breath. "There are two ways to interpret the theory that cancer is caused by viruses. The first is that a life-form such as a virus—which can neither sustain nor reproduce itself alone, which lives as a parasite on living cells—must first come into existence by hijacking cellular replication mechanisms, and therefore cannot have come to exist unless living cells existed *first*. This is the Cellular Origin Hypothesis, which says it was only after the most primitive forms of life came into being that viruses were born out of chromosomal irregularities in the nuclei of ancient bacteria. The other theory is that when early, primordial life-forms—primitive, single-celled organisms—came into being, a kind of genetic devil-child developed in parallel. This is the Independent Entities Hypothesis.

"Both of them have been around, but Leisener proposed a new hypothesis based on the former that he called the Evolving Virus Hypothesis. Put simply, it suggests that as viruses continue to have very close relationships with living things, the most evolved of them might become able to replicate themselves without needing the form of a mature virus, using only the genetic material of their nucleic acids. According to Leisener's Evolving Virus Hypothesis, the viruses spring from cells in a secondary manner. So, isn't it possible that as the next step, viruses would take on a tertiary form that reproduces by processes using nucleic acids alone, and no longer go through the process of maturing as an individual? He published this hypothesis in *Science* five years ago in an article titled

‘Reproducing Chemical Substances.’ Academia felt it was a little too bold though, so it was ignored.”

Outside the room, the sun dimmed. It was the brightest time of year—early summer in England—but just that day the winds were blowing and there were many clouds. It looked like the weather might turn bad. Already, the sunlight was slanting in from fairly low in the sky. As soon as it went behind the clouds, that worn-out, rugged room at the Department of the Army was suffused with a twilight gloom, and a feeling of sticky, humid air softly exhaled from the corners of the room and from the shadows of furniture—shadows that had been concealed until that moment. The tedious scientific monologue that Dr. Landon was delivering only made the oppressive atmosphere that much heavier.

As if to ward off the humidity, the minister picked up a gold foil cigarette and lit it. The purple smoke of Turkish leaves lent the room a slightly dry, warm aroma.

“Before Karlsky came here, he had been doing joint research with Leisener, so as soon as he saw the strange phenomenon of the MM series’ infection, he remembered Leisener’s theory. He hypothesized that the MM series germs were not just simple bacteria, but also contained the nucleic acids of some kind of prophagic virus hiding in their chromosomes. Or that maybe the MM series had a sort of cellular cancer. A cell that has become cancerous has a much greater rate of replication than a regular, healthy cell does. So could the carcinogen that causes this cellular cancer exist even in the germ-free fluid filtered from the culture base of the MM bacteria and be causing ‘cancer’ in the regular staphylococci that so resemble the MM strains? This replication itself can be malignant or benign, but in this case, it’s probably benign—it makes the cells divide like crazy; it doesn’t make them self-destruct.

“Karlsky and I started poking and prodding at the MM series, trying various things—hitting them with radiation, using chemicals on them—to try to expose the viruses. But in the end, we found nothing. If these bacteria were collected in space several hundred kilometers above the earth’s surface, they would have been floating in a veritable firestorm of radiation up there; the radiation they get on the earth’s surface wouldn’t even be enough to make them twitch, but well, anyway, no viruses came out of the MM series.”

Major Grey had been listening patiently. As his only clinical experience came from working for a while in a field hospital in Normandy, this monologue was difficult to follow, but still it was not entirely incapable of holding his interest.

The hidden seed of a sinister virus, quietly hiding in the chromosomes of a bacterium, replicating along with the host by cellular division, waiting for its chance. Stimulate it, and suddenly that seed would germinate into new viruses that would destroy the host bacterium, bursting out of it from within.

*I see now. Very interesting. And if what he's describing could be used as a weapon...*

"By the way, one more odd property of these things ended up providing new evidence in favor of Leisener's theory. If you injected a bird or mammal with either the MM cocci or with staphylococci that had been infected by secretions from the MM series, the germs would first begin to reproduce wildly, just like when animals come down with asuppurative disease, but then they would quickly disappear without a trace. Isn't that weird? Put them in a human body, and the MM bacteria would self-destruct and then dissolve."

"Are you saying that humans would develop antibodies right away?"

"Nothing so simple as that. Naturally, an animal that we infect can develop quite a few antibodies in its lymph, but the strange thing is that when the MM bacteria disappear, the antibodies disappear too. Incidentally, you probably think that if the MM bacteria dissolves inside a living body, it must be utterly harmless to the animal. It turns out, though, that when we injected MM bacteria into an animal—even though the bacteria will completely disappear in about two hours—sixty percent of our test marmots were dead within twenty-four hours. Acute myocardial infarctions. The same happened to dogs within forty-eight to sixty hours. Monkeys, seventy hours. Our other test animals showed acute symptoms of general paralysis not long after injection and then presently died of metabolic damage. That is to say, extensive, acute damage occurs to the autonomic and sympathetic nerves. In rare cases, G-gas causes the symptoms of muscarine poisoning—as when someone comes into contact with an organophosphorus compound—but in most cases just the opposite occurs, and the impulse-conducting nerves are damaged instead.

"When we looked into the matter we learned that the generation of the impulse conductor oxyacetylcholine was being completely blocked, and in short, the nervous system's conduction mechanism had gone haywire. Furthermore, we used a technique called the ferritin antibody method, and when we looked closely at the results, we learned that it was the nerve cells themselves committing these murderous acts. Karlsky put it marvelously. 'Cellular suicide,' he called it..."

At the sound of the word "suicide," Major Grey's eyes, which had shown him

to be deep in thought, suddenly twitched. However, the major still said nothing as he listened intently to Dr. Landon's loquacious speech.

"However, there is another case in which the cells of a living body commit a kind of suicide by way of their own reproductive mechanism. That would be cancer. In the case of virally induced cancer, as is caused by Shope papilloma virus, Rous sarcoma virus, Bittner virus, and others, the nucleic acids of the virus work themselves into the chromosomes of infected cells and make a royal mess of their genetic information, transforming healthy cells into suicidally malformed variants—virulently aggressive cancer cells. Viral cancer is caused by the nucleic acids of those viruses only. Do you understand basically what it is that I want to say? As soon as the 'Martian Murderer'—the MM bacteria—gets into a body, nucleic acids that drive nerve cells fatally mad and turn them into suicide cells are created within the organism's own cells."

Dr. Landon was looking a little pale now and had broken out in a sweat on his forehead, as though overwhelmed by the dreadfulness of what he had just said.

"With this infectious disease caused by the MM bacteria, Karlsky had simultaneously ended up corroborating Leisener's theory of nucleic acid replication. He took spinal fluid from hamsters that died of MM disease, filtered it, and after a great effort to make completely sure that it contained no virus of any sort, injected it into hamsters that had been raised in a sterile environment. After he did so, the hamsters showed signs of infection, and aside from the time period between infection and the dissolution of the bacteria, the disease progressed exactly as before. After this, he put this fluid into a regular staphylococcus culture base, and exactly the same unusual replication phenomenon took place as takes place in an MM infection. When he infected healthy hamsters with these cocci again, just like the MM bacteria, dissolution and acute symptoms of infection took place. Throughout all of this, no virus was ever detected. Only one thing can explain this: that there is a process of infection by nucleic acids alone, followed by replication, and then illness..."

Landon finally took a breath and wiped the sweat from his damp forehead.

"I think you see what this means—how terrifying the MM line could be as a germ weapon, and how at the same time publically announcing it would practically guarantee a Nobel Prize—its rate of replication is extremely high, and it has a terribly hardy nature that allows it to survive at temperatures as low as sixty degrees below zero. In shape it resembles a staphylococcus, and as is the case with golden staph, antibiotics hardly work on it at all. Another of its outstanding points is that

if it got into the human body, it would dissolve and disappear—we don't know why it dissolves once it infects an organism. It may be the same sort of mechanism at work as when a prophage receives a stimulus, produces bacteriophages, and disintegrates. The antibodies that are produced in the lymph of infected animals may serve as that stimulus.

"Anyway, the point is that even when acute disease occurs, neither bacteria nor viruses will be found in the infected areas. When this utterly new contagious disease first appears, it will take a terribly long time to determine what is causing it. The germ itself is completely unknown, and at first blush looks no different from the exceedingly common staphylococcus. Furthermore, the nucleic acids—which are the real contagion—are hidden inside the bacteria. In bacteria they produce unusual replication; in organisms, they produce acute damage to the nervous system. And nobody else is aware of these things.

"First of all, the nucleic acid replication theory is not formally accepted in academia. It's even said by some that the reason Dr. Leisener disappeared was because the objections to his theory were so excessively scornful. As a weapon it is lethal, and moreover, its actual contagion is completely unknown to civilian medicine, or the public. Likewise, its mechanism of infection is unknown. Antibiotics don't work on it, and lymph won't work on a nucleic acid infection. What all of this means is that there is no way to treat it. What do you think would happen if such a fearsome contagion were spread around as a biological weapon?"

"What would happen?" asked the minister.

"Well, the first thing would be the annihilation of whatever country it was deployed in," said Dr. Landon, as though this were a trifling matter. "There would be no way to stop it from spreading. What showed us most clearly that the MM bacteria had such dreadful qualities was the eightieth generational culture done at our laboratory; namely, the series beginning with MM-80. We should be most grateful that we don't have such fearful germs as those floating around about a hundred kilometers over our heads all the time. Because of those germs, and on Sir Lindner's instructions, we began trying to find a way to weaken their toxicity. That was from MM-85 onward."

"Weaken it?" murmured Major Grey.

"Precisely. Major Gren—pardon me—Major Grey—think about a nuclear weapon. The Soviet Union and the United States once made hydrogen bombs in the begaton class, equivalent to a billion tons of TNT. The first nuclear weapon

in history to be used in war at Hiroshima had an explosive power of twenty kilotons, or twenty thousand tons of TNT. A megaton hydrogen bomb has fifty thousand times that much power. The estimated total amount of gunpowder used in the Second World War comes to five megatons, or five million tons. That means that if one megaton-class bomb were to be dropped, it would have far greater explosive power than all the gunpowder used in the Second World War going off at once. The hydrogen bomb has now developed to the point that, counterintuitively, it's quite useless. Theoretically, you could go on making hydrogen bombs as big as you like, but they've stopped making anything bigger than these. The reason is simple. It's because after exchanging a volley of them, there won't be anything left of either country. The thing about weapons is that if they become too destructive, they become unusable.

"G-gas is also amazingly powerful, which was precisely why the Germans couldn't use it when the Allies landed at Normandy. If the direction of the wind were to change just slightly they would kill all their own men. For the same reason, if MM-79 were used carelessly, it could mean the extinction of all human life on Earth. And not just humanity alone; it could be the end of every vertebrate as well. That's why starting with the 80 series, we set about doing research for 'usability.'"

"Well, did you succeed?" Major Grey had not let on to Dr. Landon that he had been waiting for his turn to take the lead in this conversation. Dr. Landon's long-winded speech was finally nearing its finale.

"It didn't go very smoothly at all," Dr. Landon said, blinking his eyes. "MM-84 was a good deal weaker. But then eighty-six went the other way and became stronger. When we got up to making eighty-seven, Karlsky's nerves got the better of him. We've killed a man I really hated to lose. He knew that accursed MM series like he knew the back of his own hand. He was the only one who really knew how to handle such dangerous material. This is just me thinking out loud, but I can't help wondering if knowing it too well was what did his nerves in."

"I see." Major Grey was at last positioned for a counterstrike. "So—"

"Ah, and then a bizarre property manifested in MM-87," added Dr. Landon, suddenly agitated. "A synergistic effect with other viruses. In 1963 at Japan's Osaka University, the husband and wife team of Mr. and Mrs. Hanabusa, along with Rubin, discovered that for the Rous sarcoma virus to grow, a secondary 'bridesmaid virus' is also necessary. But when the MM-87 nucleic acids entered a living creature that was already infected with a certain kind of virus, they *hijacked* the virus and

apparently continued infecting the host. Moreover, the effect was stronger than a single infection. That virus type was the extremely common myxovirus group—”

“I think this is enough technical talk,” snapped Major Grey, this time cutting the doctor off. “Please answer two or three questions from me now.”

Fate is a truly ironic thing. By a coincidence as narrow as a single hair, events can swing either right or left. Who can say whether this moment perhaps corresponded to such a situation, but anyway, when Major Grey, who had been more than patient in listening to Dr. Landon, cut him off at this very instant, it was a gravely unfortunate coincidence. Had Dr. Landon not been interrupted, the war minister, whose interest had been piqued, would have asked, *The myxovirus group? What is that?*

He had been just about to ask it. Myxoviruses are viruses that breed in mucopolysaccharides—influenza viruses, Newcastle disease viruses, and so on. Had Dr. Landon explained this to Major Grey and the minister, they would have doubtless felt their hearts skip a beat. They might have realized the obvious connection between the stolen germs and the two viral epidemics that were at that time already raging across the globe.

Instead, however, Dr. Landon was simply asked two or three questions regarding the state of the lab and Professor Karlsky’s research just prior to and immediately after that man’s death, and was then dismissed. Major Grey, after observing how unexpectedly loquacious the doctor had been, felt just a bit apprehensive about taking him into his confidence. He didn’t feel like telling that childish, baby-faced man that Karlsky might have committed an act of treason against his country. He would certainly become upset, and that would be bad.

Major Grey just wanted to know about the care and handling of that frightful MM series.

“Yes, of course. There are two senses in which we’re handling it with extreme care. The first is making sure that none of these vicious germs get out. The other is making sure that no trade secrets get out.”

From the standpoint of safekeeping and security, there had been no problem whatsoever with the eighty-six types of germs prior to MM-87. The laboratory was the room that had the most through traffic, but Karlsky committed suicide right after finishing the prep for isolating the mutant MM-88 strain. Which means that although there were notes on test preparation, “...the mutant MM-88 strain didn’t yet exist,” testified Dr. Landon. “Work on adapting it for use is stalled for now.”



Once he had gotten this far, the doctor was sent home. He left without knowing that Grey was considering the possibility that Karlsky might have stolen the MM bacteria. At the same time, he had also missed his chance to contemplate the horrific state of affairs that would come to pass when the major epidemics of Tibetan flu, Newcastle disease, and MM bacteria overlapped.

Incompetent as a researcher, the lab director Sir Lindner's experience amounted to having treated *gerubezorute*—German soldiers who had suffered exposure to chlorine gas—during his days as an army doctor during the First World War, and in having identified the anthrax germs that had been buried in the garden of the German legate in Budapest in 1916. As such, he was unable to keep up with the latest theories in microbiology; it was rather as a germ warfare strategist, and as director of the military research center, that he was competent. He was already an old man, steeped in the conservative narrow-mindedness of the nineteenth century British upper class, completely lacking in any understanding of the new world. He was feeling terribly angry because of his subordinate's shameless act of betrayal—of which he had already been informed—and by the undignified, rapid-fire manner of speaking of that man's colleague.

"It sounds like a most dreadful item, Arthur," said the minister once Dr. Landon—who had looked rather happy at being allowed to leave early—had left the room. He addressed Sir Lindner by his Christian name, which he had used since they were boys. "And that man, too, is quite a dreadful piece of work himself. Just babbles on and on, doesn't he, like some cheeky schoolboy who wants to parade his knowledge after reading a science article."

"The young lot we have now are all like that," Sir Lindner said, practically spitting out the words. "I thought Karlsky was a little more mature, but look what's become of him." He then turned back toward Major Grey and snapped, "Well? Did you turn up any conclusive proof that he was a spy?"

"Not yet," said Major Grey. "I have, however, come to an admittedly vague understanding of something one might say is almost as good. Three days before he died, Karlsky took leave and went straight from Porton Down to his sister-in-law's home in Brighton. Thanks to a report we received at that time from his observers, however, we've learned that somewhere along the line he was evidently swapped out with a double, right under the noses of his keepers."

"What were you Army Intelligence people doing?" Sir Lindner shouted, not holding back. "A man under special watch, and you let *that* happen!"

"We're shorthanded," Major Grey said softly. "And the ones surveilling him at that time were police, not us."

"So where did Karlsky go after they lost him?" asked the minister. "At the very least, you said he was in Brighton on the following day, didn't you?"

"We had to do a lot of legwork asking around, but at any rate, it seems he got into another car and went to Cornwall," Major Grey said. "We also learned that although there was a terrible snowstorm that night, an airplane apparently took off from Cornwall headed east. All of this is circumstantial, mind you. The testimony of those who said they heard an explosion is vague and uncertain, and the story that someone who *appeared* to be Karlsky was seen in a Rolls Royce headed for Devonshire is unreliable. However, there is no record of any such eastbound airplane being picked up on radar that night."

"You think all this has something to do with his killing himself without so much as leaving a note?"

"I suspect it might. The day before his suicide, there was definitely one other man at the house in Brighton. That man could have murdered Karlsky and made it look like a suicide, but at this point there's no longer any way to tell for sure. His sister-in-law only said that she was away from the house at the time but knew he was staying there. However, she was a rather senile old lady, so take that for what it's worth. She died recently of Tibetan flu."

"And what are you saying all this means?" Sir Lindner said irately. "Was he a spy or wasn't he?"

"The possibility is looking quite strong," Major Grey said dispassionately. "On the very night of his trip to and from Cornwall, an airplane of unknown nationality crashed in the Alps, on the Italian side. The following morning, American intelligence agents in Ankara and Istanbul were up before dawn. They appeared to be waiting for something—this we managed to drag out of the lads in the foreign intelligence department. There was a bit of an argument shortly thereafter between the Americans and a ring of professional spies. If you want to connect the dots between these assembled facts, it's certainly possible to do so. But there is nothing in the way of conclusive proof."

"That's all you're capable of getting in three months' time?" Lindner said bitterly. "If that's the case, it's no wonder you're always being beaten to the punch by the boys at MI6."

At that, a slight hint of red tinged the serene face of Major Grey, though

otherwise he remained a model of self-discipline. "I wouldn't say that's *all* we're capable of. Even we have to set priorities in our line, you know. Even so, we were the ones who nicked the Americans' MM germs by hitting that deal between the middlemen and the foreign spies who hired them. For that I think we can spot MI6 a few points. And if those same germs have been stolen by another spy this time—and if it does turn out to be the Americans trying to buy them back, I'd say the Fates have you running in circles."

"Americans, you say? I see. And here I thought it was the French again," the minister muttered. "At least it wasn't a Communist Bloc country."

"I can't say for certain that it isn't. It's just...one thing bothers me a little. It's about Leisener, Karlsky's former teacher from the Max Planck Laboratory. We've learned that after he disappeared four years ago, he turned up working on germ weapons under an assumed name at a chemical weapons research facility in Pilsen, Czechoslovakia. This may or may not be related to all this, but Leisener also died just one week ago."

"He's dead?" Sir Lindner said. "Was it influenza?"

"Yes. Or, well, according to one theory, he was infected by his own germs in the course of his research, but...well, that's neither here nor there. After that, there was one other thing. The doctor who performed the postmortem on Karlsky spoke of a possibility that Karlsky may have killed himself against his own will, under the influence of post-hypnotic suggestion, perhaps, or a drug-induced delirium."

"And what is that supposed to mean?"

"Well, what I'm trying to say is that there is reason to believe Professor Karlsky may have been a spy. Or at least, that he may have been manipulated by some foreign power. If the professor has handed over some vital secret related to Britain's germ weapons, we must try to steal it back. That's why today I wanted to hear a specialist's opinion on whether or not Karlsky's work was of vital interest to national defense."

"To hear Landon talk, it seems to have been quite important," said the minister. "It would be a terrible mess if that stuff were used in a war. Just as he said, the germs are too effective to be put into use yet. I can't say I don't understand that opinion, but—"

"No," said Sir Lindner, cutting him off. "You can't take everything he says at face value. Research scientists have a tendency to exaggerate the actual effects of

their discoveries from time to time. If I may state my opinion as director of that laboratory, I don't really think the MM series is all that powerful yet. I know what actual combat is like. But scientists think about things frankly, and on paper. But on a real battlefield, there are all kinds of overlapping coincidences, and the real effect of a weapon is never as great as it is on paper. Think about it. America used germ weapons in the Korean War, but their actual effectiveness was only a few percent of what was forecast. The Communist forces didn't fall into fatal disarray as MacArthur thought they would. I'm quite certain that even if they had done as he wished and used the atom bomb, it wouldn't have turned the tide of that war.

"When Landon talks about wiping out the entire human race with something like MM-79, well, it's a fairy tale. The very idea that humanity could be annihilated by a mere germ—it's nothing more than the sort of nonsense you'd find in a science fiction novel. I believe that even if you dropped megaton-class H-bombs all over the world, humanity would still survive, and that those who survived would be the victors. It's dangerous to overestimate the significance of the MM series to such a degree. We've only just begun to study it."

The minister wondered silently whether the man really believed what he was saying or if he was consciously trying to make the blunders that had led to this spying incident look less serious than they were. Still, regardless of whether Karlsky had in fact been a spy or just a simple neurotic, the damage was already done.

"I understand," said Major Grey. "In any case, what I want to say is that the army's secrets are still in danger. I can't prove that Karlsky was a spy, but there's reason enough to believe he might have been. Sir Lindner, speaking for the intelligence bureau, to have lagged so far behind in realizing this reflects poorly on our reputation, and officially we will have to deny the theory that Karlsky was spying. But I ask you, on your own authority, to please tighten security as much as you can."

Sir Lindner pulled at his drooping mustache for a while as he considered this. "Very well," he said at last in a gruff, husky voice. "We'll tighten security. We'll have to beef up our surveillance of the workers' actions as well. For the new security system, I want the full cooperation of the intelligence department. After that, I'll have the P-5 research group dissolved."

"You're pulling the plug on the MM series?" the minister asked.

"P-5 isn't capable of doing much without Karlsky. I'll also relieve Landon

of the job of laboratory chief. He's a childish man who doesn't understand real politics, and in a way he's dangerous. I'll put him on something less interesting. Eventually, I'll find someone else to take over work on the MM series. At any rate, we need to completely reorganize P-5."

Sensing the tide of conversation beginning to ebb, Major Grey looked at the minister—in his position, he had a solid grasp of what was going on behind the scenes of the Karlsky incident. Why had a fastidious man like Karlsky gone and done such a reckless thing as to divulge state secrets? What ring of professional spies had he made the deal with? Who had been trying to buy those secrets from the spies that had served as middlemen? Had the deal been carried out successfully? Intelligence Section Five had been conducting an ultra-secret investigation of all of these questions for the past three months. Moreover, he intended to bury this incident in the shadows, with the approval of the Intelligence Bureau director and the minister. There was nothing to be gained in making public the failure of the Army Intelligence Bureau. There was a ninety percent probability that the deal had not been completed. In which case, he didn't think it was a grave matter for national defense. Even so, it was necessary now to bolt up that laboratory good and tight, so nothing like this could ever happen again.

"Talk to our head of security about this problem," Sir Lindner said, getting up from his seat. "Well, then, I think it's time—"

"Arthur," murmured the minister, looking out the window. "If the unthinkable were to happen at your laboratory, what kind of measures are you supposed to take?"

Sir Lindner's white eyebrows drew tightly together for the first time. He glared at Major Grey's face for a long moment, then in a subdued tone said, "We are living with thirty-five tons of TNT every day." Sir Lindner cleared his throat. "The only ones who know are the chief of security, myself, and two others. The switch is in my room."

"And what about the germ cultures?"

"Flames from napalm jelly burn at two thousand degrees Centigrade. That should take care of them for us."

"I would hope they would..." said the minister in an oddly timid voice.

"Richard, at the very least, you shouldn't be asking such things in your position." Sir Lindner glared at Major Grey once more.

"Ah yes, well, that's also true," the minister said, his voice still soft. "Arthur,

we have to assume that word of our MM series group has leaked out to a number of other countries. They most likely know what it is as well. Even if we discount what Landon had to say, that one-in-a-million scenario where this...*thing* gets out and becomes an epidemic would still be a huge mess, and we would be left standing at the focal point of an international scandal. The Soviets might expose us and start raining down criticism..."

"You're not talking about that business with Geoffrey Bacon, rest his soul?" said Sir Lindner. "That was back in '62. I had no connection with the laboratory until long after he went and got himself that lungful of plague. And we've managed to keep the newspapers from catching wind of anything this time."

"Suppose, however, that as Major Grey suggests, the MM series passed into the hands of a spy ring by way of Karlsky, and then somewhere along the way, by some incredible streak of ill fortune, it got out and caused the sort of horribly virulent epidemic that Landon spoke of. From the humanitarian viewpoint, we could, under certain circumstances, be placed in a position in which we would have to release everything we know about the MM series to the public."

For just an instant, Major Grey's eyes glinted sharply, and he looked at the minister's profile.

"Richard Cronin, don't talk nonsense," Sir Lindner said harshly. "What are we supposed to do if a man like you—with a duty to defend our country—starts saying such chicken-hearted things? If we did something like that, it would be damaging both to the secrets of our national defense and to the honor of Great Britain. You're so taken with Landon's idiotic fantasies because you're an amateur. Don't think such nonsense."

Sir Lindner's face was all wrinkles and brown spots, but for a moment it flushed pink with anger. This old man, filled with his narrow-minded pride, would flare up with anger when it came to the dignity of his homeland. "Even if it came to such a thing, in your position, surely you would deny the United Kingdom's responsibility all the way to the very end. For the sake of the nation's prestige! Even if, as the case may warrant, Landon...or individuals related to P-5...needed to be muzzled."

"Indeed, I have become a bit timid," the minister said with a small, exhausted smile. "After all, I lost my daughter two weeks ago to this Tibetan flu epidemic. What do you think, Arthur? Do you think this dreadful influenza pandemic might be some kind of sign, a warning to you people about what you're doing? According

to this morning's reports, the number of deaths in England alone is about to reach a million."

The minister was glaring at him with blazing, bloodshot eyes, but when they met the gaze of his stubborn friend, he added apologetically, "I don't mean to speak ill of the duty you're carrying out for our country, Arthur. After all, we both bear responsibility for this."

### 3. Japan

Golden week was long over, and clear days continued one after another, arid and crisp enough that it was a little chilly outside.

From time to time, there were intervals of terrible humidity, and then the rainy days began to come interspersed between the periods of sunny weather. The Weather Bureau forecast that the rainy season would arrive a little earlier this year than usual.

Between half past seven and half past eight on one such morning, commuters riding into downtown Tokyo on the loop line were feeling suddenly surprised to notice an oddly different quality in the usual morning rush hour.

Three months ago—or even two months ago—the trains at this hour would have been packed to overflowing, but lately they were becoming strangely sparse. At rush hour, the train cars on the national lines were usually so crowded that their doors would bulge outward, as though they might burst open at any moment. Lately, however, there had been room enough that there was no longer any need for station employees to help push last-minute stragglers into the trains or pull them away from the doors when it became impossible to cram any more inside.

Even among the eddying currents of passengers embarking and disembarking as they headed to work or school—all but spilling over from the platforms—sparse gaps had become visible when one suddenly took a look around. Every year, people always said that as winter gave way to spring, the crowding on rush hour trains would ease somewhat as people stopped wearing their winter coats and began to dress more lightly. This was a myth, however. In a city of twelve million like Tokyo, such seasonal changes were not enough to be felt by commuters. All year round, they were packed in as tight as they could fit—at least under normal circumstances.

But that May, it was different. It wasn't because the city and national railway companies' efforts at easing the nightmarish overcrowding had finally borne

fruit. In fact, the national lines were being forced to rearrange their rush-hour schedules to run fewer trains now, since drivers and security personnel were getting harder and harder to find. The trains coming in one after another at each terminal station, which had once arrived at a near-miraculous rate of one every thirty seconds at the peak of the morning rush, had slipped to intervals of forty seconds, then to one minute, and were now arriving two minutes apart. In spite of the smaller number of trains, there was still room to spare in the cars, and people were able to get on and off without jostling one another at all. Was it really conceivable that from half past seven until eight o'clock in the morning that May, you could easily get on and off trains at any platform at Shibuya, Shinjuku, Ikebukuro, Akihabara, Tokyo, or Yūrakuchū stations without having to push and shove against thronging crowds? Three months ago, who could have imagined that by eight-thirty it would already be possible to find places to sit here and there on an inbound train?

But despite the roomy atmosphere of the train cars, all of the passengers wore brooding, uneasy expressions on their faces. They had at last begun to feel the sense of unearthliness that took hold near the end of the morning rush—an emptiness like the space where a missing tooth had once been—and to understand that things had now reached a stage at which they could not be easily undone. Although it was May, men were sweating under full overcoats and had silk scarves wrapped around their necks. Whenever people looked around, they saw white masks dotting the insides of the cars like strewn flower petals and felt anew a vague chill within the confines of these sparsely populated rush-hour cars, as when a draft is blowing in from under the door. It was then that they would feel a moment of terror as they wondered if the nasty chill running down their spines might be the first sign that they too had been infected with that loathsome Tibetan flu. Any time someone looked at the as-yet uninfected with moist, feverish eyes, any time that someone coughed violently, people would turn aside and shrink away in faint disgust. However, nearly all of these people also felt a dull, heavy pain around their own eyes and in their own throats and lungs.

According to classified data that had come to the Ministry of Health and Welfare, the number of those infected with Tibetan flu nationwide was already nearing thirty million. In cities and densely populated areas, the rate of infection was nearing seventy percent. The leadership of the Ministry of Health and Welfare still couldn't fully accept such nightmarish numbers. From the day that Tibetan flu first



arrived in Japan, not even two full months had passed. Even so, the estimated number of those infected by the Asian flu that had started in early summer of 1957 and continued through the following year had been five million. However, these numbers accounted for a period of about a year and included the second wave that hit Japan after that strain of influenza had traveled all the way around the world and come back again. Thirty million in two months! Not three million. There had been no mistake in the order of magnitude. Moreover, the death rate continued climbing uncannily higher, and in the cities, it was about to surpass twenty-five percent.



In these mostly empty rush-hour cars, people remained as silent as the dead, as if they were afraid of looking at one another's faces. Tibetan flu was already spreading its wings over these people as an unmistakably sinister omen, and when they looked up into a bright and clear May sky, they saw inauspicious signs of impending disaster. Even so, it wasn't impossible to find the cheerful chatter that was a part of city life here and there. Yet in that chatter there was a note of emptiness somehow, and a single sigh or a single sneeze would immediately change the conversation into uneasy whispers. But although this ashen sense of unease gradually continued to unfold in the bottoms of the people's hearts, the tendency to make light of these circumstances remained strong within them.

Influenza? Why, there's vaccine for that, isn't there? There's a cold medicine called XX that works wonders. Chinese medicine is good. Drink some water boiled with kudzu root. No, boil some earthworms that have been dried in the shade. I've heard that antibiotics hardly work at all. What're you talking about? Eat some healthy food and put a hot water bottle in your bed—you'll turn right around. Nothing works better than egg sake. Steam some pickled apricots until they turn black, then put them in *shochu*...The hospital? You're overreacting. This is just a cold, isn't it?

This is just a cold...or flu, right?

Somewhere deep in their hearts, the word "just" was slowly changing into the words "it can't be." In a deep, deep place that had not yet risen to consciousness, the meaning of the symbol that was the word *influenza* was slowly changing in its gravity.

"No, this can't be influenza!"

A postscript to this change in thinking was where in the newspaper articles related to influenza could be found. Beginning in April, influenza articles were located in the bottom left corner of the newspaper's society page, but gradually they began to creep toward the upper right. Lower left to upper right...from three-paragraph filler pieces to the top of the society page. Along the way, these articles leapt like sparks from a flame to the living page and culture page, and at last to the international news on page two. Then, in the form of feature reporting on the worldwide tragedy, the articles quickly began to take over the entire international page, dotting it like a hideous outbreak of spotted fever.

TIBETAN FLU RAVAGES PACIFIC ISLANDS: ENTIRE  
POPULATION OF FIJI FACING 'POSSIBLE EXTINCTION'

NATO COMMANDER SPEAKS ON FLU-CAUSED STRATEGIC  
CRISIS—40% OF GROUND, AIR FORCES PARALYZED

FRENCH PRESIDENT ORDERS SPECIAL EMERGENCY MEASURES  
FOR THREAT OF TIBETAN FLU—SYSTEM PROPOSED FOR EEC  
NATIONS TO SHARE DOCTORS, HOSPITALS, VACCINE POOL

GOYA'S TIBETAN FLU DEATHS REACH 200,000—  
CHOLERA OUTBREAK ALSO SUSPECTED

No, these disgusting Gothic-faced sores didn't stop on the international page, but rather spread to the economy, sports, and entertainment pages as well.

For example...

—The tenth game of the season, between the Giants and Hiroshima, was called off. Many players on both teams are sick with influenza. The chairmen of the Central and Pacific Leagues met with VIPs from each ball club for an emergency meeting about the schedule from the eleventh game onward. Does this hint that a portion of this season's schedule will be changed in accordance with the Ministry of Health and Welfare's measures for stopping the spread of the disease?

—The entire pitching squad of Toei is down with Tibetan flu. Every player in their lineup for facing Hankyu is flat on his back.

- There were barely two thousand spectators at Kourakuen Stadium.
- Third Baseman Hendrick of Nishitetsu died during the game. The strain of forcing himself to play while ill was to blame.
- Sumo: Starting from the third day of the tournament, two *yokozuna* and three *ozeki* will withdraw due to Tibetan flu. Does the director of the Japan Sumo Association intend to call off the remainder of the summer tournament?
- S Theater's musical has been canceled due to multiple absences among the main cast, supporting cast, and dancers. The outlook is bleak for June performances.
- Production of films continue to be halted. The sudden deaths of big stars have dealt blows to productions that could not be covered for in time.
- The index numbers for manufacturing dropped by 22 percent in May. Reduction of operation in steel and machinery production is certain. Shortages of skilled on-site workers continue.
- The Dow plunged to a record low. In June, will it drop another seven hundred yen? Only volumes of chemical and pharmaceutical stocks are rising sharply. The average is 12 percent lower compared to last month.
- Prices for fresh foods continue to explode. Outlook dim for a reopening of egg trading. The Ministry of Health and Welfare calls for strict punishments for anyone selling the meat of chickens that died of illness.
- Both wholesale and retail prices climbed dramatically in May. The danger of "Tibetan flu inflation" increases.

Then at the end of May came the big news that sent shock waves around the world: SOVIET PREMIER DIES SUDDENLY OF INFLUENZA. Once this news hit, the Tibetan flu stories suddenly jumped to the front page. They would never disappear.

It was on the front page, at the top of the political page, with the large headlines used for international stories. Other articles quickly appeared, such as "Government Convenes Emergency Cabinet Meeting to Discuss Tibetan Flu Problem," "Temporary Administrative Measures for Combating Tibetan Flu," "Prime Minister Calls on Citizenry to Fight Domestic Tibetan Flu Crisis," "WHO Asks Security Council for Peacekeeping Police Cooperation in Tibetan Flu Measures," and "Rome, Benelux Declare Martial Law," one after another, on the front page.

These disturbing changes appeared to have exposed the face of a cold, hard fear that lurked one level below people's sense of "It can't be!"

It can't be! But what if it is...?

It was true—arrayed on that grayish, coarse paper were blunt Mincho- and Gothic-type characters, printed with neither color nor grace, news that could be read drily, mechanically, which allowed you to peer into the events of the world around you as though there were a single plate of glass separating you from them. It took the direct meaning of the events that happened near you and the things you yourself experienced and reduced them to "the events of the world"—to public events owned by no one—and in so doing served to dull their poisonous colors. If it did not, there would be no way we could casually read about traffic accidents and murders and forget them as quickly as we do. Even so, there also come times when the reality eclipses the reporting, when from beyond that fresh-ink aroma of the newspaper, or from the back of that radio or television receiver, it surges across and spills over onto your side. At such times, the tragedy is no longer someone else's; it is yours and yours alone.

You can read, "Seventy thousand died instantly in the atom bomb blast at Hiroshima, but the number climbs to 239,000 when you include those who died over the following five years," but you were not in Hiroshima at just past eight on the morning of August 6 in the twentieth year of the Showa Emperor's reign. As far as you're concerned, it could have said ten or twenty or thirty thousand just as easily. These are common numbers. As numbers go, the strings of zeroes are hardly unbelievable. You can write them down with just four or five strokes of the pen—fewer than it would take to transcribe a new movie's weekend box office. They're hardly shocking. And because of that, you'll forget them right away. It's already been quite some time ago, so the fact that you're here reading about Hiroshima now means that you're not included in that number.

*That really was a frightening thing, you might think. Man, that war was really terrible. Well, enough of that. We were very lucky. I never want to remember that kind of thing again. In the first place, I just don't have that kind of time...*

So now you read an expository piece. It says that in 1918, fifty million people—roughly a third of the world's population at the time—came down with Spanish flu, and twenty million of them died from it. Fifty million? That's about the same as the number of television sets that have been made. One fifth of the entire population of Japan—yet compared to the worldwide population, isn't that just a handful? This

is already half a century in the past, but viewed from that time, medical science has made tremendous progress.

What're you talking about? I feel fine. I'm still young, and my body is still in great shape. I've got a ton of things I want to do, and I should still have plenty of time to do them.

Except...what about when you read an article that says there are thirty million people who have come down with Tibetan flu, the mortality rate is about to exceed twenty-five percent, and you realistically, specifically, feel those numbers bearing down on you personally? When you hear that a third of the population of Japan has already contracted it and realize that a quarter of those people are going to die? That out of a group of a dozen people, four will catch it, and one of those will die? The puffiness around your eyes, your runny nose, the hot, vacant unpleasantness of the fog in your head, the sluggishness of your whole body, the dull aching of the joints in your arms and legs...all signs that you've already become one of the four. You take your temperature, and it's sitting right at 37.5 degrees. Your nose is stopped up, you feel warmer than is comfortable, and the pain in your head is getting stronger and stronger. Which means you have a one in four chance of...

*It can't be! But what if it is?*

Gripped with unease, you try to run to the pharmacy. Then at the door, you remember that you've already taken quite a lot of over-the-counter cold medicine. Or perhaps you remember someone you knew who died of acute symptoms even as they were taking cold medicine. Because of that, you are wracked with terror and call your doctor at home or at the hospital. No matter who you call, all you're likely to get is a busy signal. Annoyed, you open the yellow pages to the Doctors, Clinics, and Hospitals section and start dialing numbers one after another. All busy—even the main numbers for large hospitals. So now it's become a matter of principle: you double down and keep on dialing, and then several dozen numbers later, you finally get ahold of a doctor's home, terribly far away. However, at just the moment when you're about to tell him what you want, you hear the voice of a terribly hoarse woman telling you bluntly between clearings of her throat, "I'm sorry, but I'm very busy right now. The doctor has just recently passed away. Yes. Overwork and influenza!"

The clack of the receiver being slammed down as she hangs up.

Unable to stand it any longer, you take off running for your neighborhood clinic. And what will you find when you get there?



For the past two weeks, people had come thronging into the blue-collar neighborhood around K Hospital at six o'clock every morning in the hopes of seeing a doctor. By ten o'clock, the people who couldn't get into the waiting rooms had formed lines of people—*walls* of people—crushed together with uneasy expressions on their faces. There was a dangerous tension there, as if just by casting a small stone in their direction you could trigger a sudden, panicked stampede for the hospital doors, with everyone fighting to get out first. Even so, the people were actually being more orderly and well behaved than at regular times. That orderliness seemed to be something that emerged naturally from within the multitude as a whole. When a mother with a small child came to the end of a line, those in front of her immediately yielded their places one after another until she was conveyed to the very front. When another young mother came running, out of breath, carrying a limp baby in her arms, the line parted right away and someone in the back shouted, "You in front! Switch places with her! Tell the doctor it's a baby!"

Most of the people had teary eyes, faces that were red from fever, and bad coughs. There were many as well who had poultices wrapped around their necks and white surgical masks over their mouths. This was not such an unusual sight at a hospital, but what was different now was the absence of much conversation amid such a large multitude. It was as though their fears—ambiguous fears—had cut each individual off emotionally from every other.

From morning until afternoon, the crowd's numbers grew larger and larger. One week ago, the hospital staff had pitched a temporary tent in front of the main entrance and set out some simple benches as well. The benches were occupied primarily by children and the elderly, so the vast majority of people waited, unmoving, bathed in the remarkably hot late May sunlight. There were many who would go suddenly pale and collapse right where they stood, as though sun-stricken. When others put their hands on the shoulders of such people to check on them, they sometimes found that the person had died while waiting.

Although the bystanders' faces would go pale, they actually made little stir, rarely speaking to one another in whispers between fits of coughing. One of them would hurry off to the nurse's station at a full run. The face of the body would be covered without fanfare by whatever cloths or handkerchiefs were on hand, and

the long line of people that had quietly stepped aside would look on from the corners of their eyes as they passed by, advancing ever so slowly.

Under the brilliantly shining sky of early summer, carp streamers undulated gently, and pinwheels made from the feathered ends of arrows glinted as they turned in the sunlight. Amid the warm, gentle breeze of early summer was the sound that everyone was thoroughly sick of—the incessant sirens of the ambulances and police cars running here and there past distant street corners, down nearby roads, and into the emergency entrances of hospitals, their wailing like the ferocious cries of monstrous birds.

Middle-aged men who heard them got the uneasy feeling that a war or something had suddenly broken out.



Speaking of war, that was exactly what it was like inside the hospital. Vaccines, antipyretics, cardiotonics, antibiotics. Every hospital room occupied by patients in critical condition with high fever. Even the ear and nose, surgical, ophthalmological, and obstetrical wards were pressed into service. Even the couches in the hallways were being used as beds. Most of the doctors had been working without sleep or breaks, and there were even some who had soldiered on through dozens of hours of treating patients, relying on stimulants, vitamins, and nutritional supplements to keep themselves going. In the surgical wing, the surgeons couldn't get away because people injured in a sharply climbing number of traffic accidents were being carried in with hardly a break. On the other hand, other kinds of doctors including ophthalmologists, ear and nose specialists, and dermatologists had been mobilized to care for Tibetan flu patients. Even worse, there had already been three deaths among the doctors who worked at K Hospital. Despite the fact that the nurses had all had their vaccinations, some of them were in very serious condition, and K Hospital, which was being forced to handle more than three times its usual workload, was calling up volunteer caregivers and medical school students to help out.

*This is no ordinary flu*, thought Dr. Tsuchiya, the assistant head of Internal Medicine. As he injected patients with antipyretics to break their fever and diaphoretics to cause sweating, he repeated these words in his mind again and again, as though reciting a sutra. *This is absolutely no ordinary flu. Could it not have some other cause?*

The patients were all getting high fevers of around thirty-nine to forty degrees Centigrade. The high fever was the most obvious characteristic of this Tibetan flu. The symptoms were dramatic. One minute you were feeling a little draggy, as if you'd caught a head cold, and then suddenly you were running a high fever of almost forty degrees, which continued for more than two weeks. Almost everyone who showed these symptoms ended up in very serious condition. Moreover, because of the weak effect of the vaccine, there was no small number of previously vaccinated patients showing almost the same symptoms. There were even those who had died after being infected a second time. Vomiting, diarrhea, symptoms of meningitis, lethargy, convulsions, pneumonia, and then weakening of the heart and myocardial infarction—the number of patients who died suddenly of such damage to their hearts was staggeringly huge. It was characteristic of this Tibetan flu and was steadily becoming one of its most serious traits. Of the patients who died of the disease, the curve representing the percentage of those who died of cardiac arrest was climbing upward at almost a seventy-degree angle. This was true of this hospital, and it was true of the nationwide statistics released by the Ministry of Health and Welfare.

*Something is wrong about this flu. A phenomenon unlike anything we've seen in the countless flu epidemics we've experienced until now is showing in the epidemic phase.*

Using some tricks he'd learned doing group examinations at schools and factories, Dr. Tsuchiya quickly divided the patients into three sections for treatment based on their conditions and also took on the job of injecting them with antipyretic and antibiotic medicines himself. It had been three days already. With only occasional breaks here and there, he had hardly slept at all.

*Even though the people who have been vaccinated present somewhat lighter symptoms, we're still seeing deaths in that group. The vaccine is weak and doesn't work at all unless you take three times the usual dose in three separate injections, yet even among those who follow all the rules...even among those who have shown no symptoms of flu beyond sneezing a few times...people are dying, and mostly of heart attacks. This doesn't make sense. This is no ordinary flu.*

Pssssh!—stick the needle in hard, push on the piston, and pull it back out while holding a disinfectant swab over the puncture.

"Next. You stand over there. Yes, please come. What's your temperature? You really should check it at home before coming in. Stick out your tongue. Okay, give me your arm." Pssssh! "All right, next patient, please..."



As he waited for the next person to come forward and sit down in front, he would set aside the syringe and gently massage his fingers to loosen them up. He had already forgotten when he had started and how many tens of thousands of people he had injected. He had sharp twinges of pain running from his right shoulder to the back of his neck, his fingers were terribly swollen, and his arms felt like lead.

"All right, next."

*Phenacetin, vitacamphor, ilotycin, quinine hydrochloric acid, codeine hydrochloric acid, antihistamines—heavens, this stuff does nothing except calm them down while they're here. Is that all we've got for fighting this flu? Have humans really lived for thousands of years with influenza without ever finding a cure?*

Take a diaphoretic to make you sweat and an antipyretic to break the fever. Keep yourself warm and lie down. Drinking some egg sake or water boiled with kudzu root would also be good. Boiling the water with pickled apricots steamed and blackened in shochu? Yes, do that. Over-the-counter medicines are ultimately about as effective.

There were no cure-alls for viral diseases. The only one that had ever been discovered was 5-iodo-2-deoxyuridine, discovered by Herbert E. Kaufman in 1962, and that only worked on herpetic keratitis. There had been many trial runs for other nucleic acid synthesis inhibitors, but all of them had ended in failure.

*What is wrong with this world?* Dr. Tsuchiya thought. *The 1960s were almost over, and yet out of all the countless viral illnesses that existed, a cure had been discovered for only one of them—herpetic keratitis, which wasn't even a particularly serious disease!*

"I'm sorry, but vaccinations are over now; the vaccine has run out. We won't get any more in for another three days. I'm very sorry."

Far away, a crowd controller was shouting in a voice gone hoarse. Some of the people waiting were shouting back. There wasn't enough vaccine. Although the production capacity had been made known, there were too many patients. On top of this, the worldwide epidemic of false fowl plague had dealt a strong blow to egg production, and though all the universities and laboratories were switching over to tissue cultures, and even though preparations for mass production had been made to some extent, three times the usual amount was necessary, and the vaccine didn't have much of an effect anyway.

"All right, next!"

The next patient had a red rash around his mouth and water blisters at the corners of his lips. Dr. Tsuchiya inwardly gasped. He had just been thinking about herpes, and here was a patient with complications of herpes with his influenza. *That's right, he thought. Herpes develops even if there are antibodies in the blood. Completely different from other diseases. Come to think of it, the antibodies produced by the vaccine for this virus aren't any use either...*

"Doctor, is my child going to be all right?"

A young mother, herself white as a sheet and looking quite feverish, held out a little girl of about four who hung limp and pale in her arms, her eyes closed. The doctor was startled when he felt her forehead—she was burning up.

"When did it start?"

"She'd been coughing until yesterday evening, but this morning she suddenly became so weak..."

Pulse: fast but weak. Breathing: labored and fast, with weak whistling sounds from her throat. From time to time, her arms, legs, and lips shuddered twitchily.

"Get her into a room!" the doctor shouted over his shoulder. "Tell Takada to see her right away, right now. He can't get away from what he's doing? Well then, you and you come with me and follow my instructions. This is urgent. It's lobar pneumonia. Her heart is weak too. Get the vitacamphor—"

"Will she be all right?" the distraught mother cried.

"You should have brought her in sooner," the doctor said at last.

"But, Doctor...the phones are busy at every single hospital. I can't get anyone to make a house call. Even the emergency number is—" At last, the mother broke down in sobs. "Her father is sick in bed with a terrible fever too. We all have fever."

"I understand. Please calm down. At her age, pneumonia heals right up," Dr. Tsuchiya said.

Though he knew he was merely placating her, he had no choice but to say it. There was no way to save the child. In the time since the epidemic had reached this hospital, more than five hundred babies and infants had died. In the obstetrics ward, the number of stillborn babies and babies who died after being born was going through the roof. What on earth else was he supposed to say? He was a doctor; he wasn't God.

"Next...all right. Give me your arm."

Dr. Tsuchiya was about to stick in the needle when his hand suddenly began to shake violently. He tried to pull it back, but he was too late. The needle struck

home, sticking deep into the arm of the patient—a short-haired boy who looked as though he was still in junior high school. Despite being stabbed with the needle, he only pursed his lips and squeezed his eyes shut. He didn't so much as grunt. The doctor tried to pull the needle out, but his hands were still shaking up and down as violently as if he had malaria. In the end, the syringe was left stuck in the boy's arm, hanging upside-down from it.

"Doctor! Please rest for a little while." An intern behind him had noticed what was happening and put a hand on his shoulder. His stubble had been growing unshaven for days, and his face—pale from too many all-nighters—glistened with oil. The rings under his eyes were so dark that it looked like someone had hauled off and punched him there.

"Take care of him..." Dr. Tsuchiya said, standing up. "You can do examinations, right?"

"Yes. Not as quickly as you, but..."

When he was at last on his feet, his spine and hips seemed to be making remarkably loud noises. The shaking in his hands grew worse and worse, and the throbbing pain in his right shoulder felt like it was pounding against the back of his head. Dr. Tsuchiya looked all around him, as if seeking help from someone. He made a face as though he were thinking something over very carefully, and then one of the nurses who had been looking on in confusion suddenly realized what the problem was. She nimbly thrust one hand into the pocket of the doctor's lab coat and pulled out a crumpled cigarette. She put it in the doctor's mouth and lit it for him.

"Thank you," the doctor said. He breathed in deeply, closed his eyes, and lowered his shoulders. "Thank you..."

The inside of his mouth was swollen from night after night without sleeping, and the smoke seemed to get caught in his throat, but oh, it felt good. One good smoke and his hands stopped shaking right away.

"There are rice balls in the office," the nurse said quickly, taking back the matchbook and the bag of tobacco. "There's tea in the blue pot and coffee in the red. You need to get some food in your system."

The nurses walked very quickly. The powder and lipstick had worn off of their ashen faces, their hair was disheveled something awful, and the lab coats they had been sleeping in were wrinkled and faintly darkened with dirt and grime. Their feet were swollen from standing and walking all day—they were on the verge of collapse.

*This is just like the war,* the doctor thought as he gazed off into space.

Along the side of a hall crowded with patients, their attendants, and doctors all around, patients were resting on couches and wheeled beds. Among them, there were even babies resting on the tops of wooden fire hose crates. The ones on the floor itself had white sheets pulled up over their heads—they had already died. There were three such corpses at present that had not yet been taken away. The weeping of the children, the sobs of the mothers...

*It's just like it was back then.*

The doctor was nearing the age of fifty, and during the Pacific War he had served as an army medic, traveling from central China to the southeast Asian islands of the southern front. At a field hospital with a roof made of nipa palm, they would bring them in after every combat operation: soldiers covered in sweat, mud, blood, and mucus. Then came the rains and with them the mosquitoes and flies, the amoebic dysentery, contagious diseases, festering wounds, the film coating the eyes of living men, the maggots squirming even at the edges of their mouths, the groans of those being tormented by the high fever of malaria, the screams, the weeping, the delirious raving, the strafings by machine gun from enemy fighter planes—Dr. Tsuchiya had been injured near the end of Showa 19 and sent back home to Japan. In Showa 20, he had been assigned new duties on Japanese soil and then at Hiroshima.

*This is at least better than it was then. But that doesn't mean it won't get that bad.*

Burnt, half-naked people had been squeezed tightly together in the gymnasium that the elementary school had used on rainy days, their skin peeling, redolent of blood and pus. There had been weak, crying voices—and screaming voices—of still-living babies with half the skin peeled from their bodies. Young women with pubic hair singed brown from where their clothes had caught fire, and countless shards of glass stuck in bosoms that had looked like the Buddhist Hell of the Mountains of Needles. The new medicine called "cryptocyanin," which had had not been all that effective...

*What's happened here?!* In the bottom of his heart, the doctor suddenly groaned weakly as he stood in the doorway of the hospital office. *My life is surely going to end amid blood and pus and the moans of my patients.*

Exhaustion like a great black bat suddenly unfolded its wings inside his skull, and in an instant his consciousness was receding into the distance. In that

instant, all of the innumerable horrors he had encountered over the past thirty years came welling up in his mind. The one that his mind latched onto was that terrible train wreck at Tsurumi. Dr. Tsuchiya had been at a bar near his home in Shinagawa. He had heard about it from a television news update, immediately run to get the medical bag he always took with him on house calls, and rushed over to the site. Nobody had called them, but many doctors had come running from all quarters as soon as they had heard, to work in silence, free of charge. Before the police's request for assistance had even gone out, nurses had arrived with their families in tow, and the city's general practitioners had begun treating the injured and seeing to their accommodations. Dr. Tsuchiya thought suddenly of disease and death and of those who battled against it. Because it was true—this really was a battle, after all. An endless, boundless battle. Not just at K Hospital, but right now, at each and every hospital throughout all of Japan, other doctors were fighting the same battle. Just like Dr. Tsuchiya, they were fighting on without sleep or rest, with no time to spare for eating meals, growing so exhausted that they could barely keep standing. And not only in Japan, but all over the world.

Dr. Tsuchiya shut his eyes and between ragged breaths tried to visualize the force strength of his comrades. Presently, the number of general practitioners in Japan numbered around one hundred twenty thousand. A scant hundred twenty thousand! One hundred twenty thousand, for a population of one hundred million. Even adding in the hospital doctors, interns, and nurses, the number still probably wouldn't break three hundred thousand. As for hospital beds, there were around a million of them—which meant there was one bed for every thirty patients. And not every patient was an influenza case either; there were countless people with other illnesses and injuries as well.

*There are too few of us, thought Dr. Tsuchiya. But how many doctors would be enough? A hundred million people aren't all going to grow up to be doctors. Normally, there're so many of us that some are hardly busy enough to support themselves. But once an epidemic reaches these proportions, there aren't nearly enough. Maybe it's time to rethink how we deliver medical care in this country...*

Exhaustion suddenly clutched at his heart with icy hands. Dr. Tsuchiya bore it with his brow tightly knitted.

"Won't you come in and have something to drink?" said Tanabe from Respiratory Medicine at the door.

"Thanks," the doctor answered at last. "I think I will..."

The doctor's lounge was being used to examine patients, and even the basement cafeteria was being used for temporary hospital rooms, so there was no choice but to use a corner of the cramped hospital office for taking breaks. In a metal mesh basket was a small mountain of cheap teacups, piled upside-down. A large aluminum kettle and several half-finished cups of tea had been left scattered around on a table that was covered with scratches. There were two large plates of rice balls as well, one of which was now mostly empty.

"Looks like a typhoon blew through here, eh?" Tanabe said with a slight smile as he helped himself to a rice ball. "The Ladies' Association and the volunteer housewives have been bringing in emergency provisions. Not just for us either; they're cooking rice for people in the neighborhood too. They've been a huge help to families that have been hit by this thing."

"Emergency provisions, eh?" Dr. Tsuchiya said, smiling just a little. "Japan never changes, does it? My mother told me that in the aftermath of the Great Kanto Earthquake, she'd often make three thousand rice balls in a single night. To hear her tell it, the palms of her hands would swell up and bleed."

"But these days they all have electric rice cookers. I hear they're using the kitchen facilities at elementary schools and kindergartens now. When there are wars or fires or floods, you can always count on them." Tanabe picked up another rice ball and held it out. "Have one?"

"No thanks. Just coffee for me."

He poured coffee from the red pot into a cheap teacup and drank. A film of dark grime clung to its surface. It was lukewarm and weak—like drinking muddy water. Even so, to his parched, cracked lips it was a merciful rain from heaven.

"Did you catch the midday news?" Tanabe asked, licking off the grains of rice stuck to his fingers.

"No. What's happened?"

"The number of deaths has finally hit ten million."

"That many?" Tsuchiya's hand froze, holding the teacup.

"Hard to believe, isn't it?" muttered Tanabe in a low voice of utter exhaustion. "The mortality rate is thirty percent. You think Japan might end up losing more people from this than it lost in the war?"

"More," Dr. Tsuchiya said with a nod. "Pretty soon...twice that number."

"It hasn't even been two months since this started," Tanabe said in a strained

voice. "Tsuchiya—this is really bad. Do you think this is really even influenza we're up against here?"

Tsuchiya stared dazedly into the dirty-looking brown liquid in the bottom of his teacup for a moment, then, as if deciding his course of action, filled it to the brim once more. "Tanabe, how's your wife?" he asked unexpectedly.

"Haven't seen her in nearly a month," Tanabe said with a frown and drooping shoulders. "The hospitals over there in Kanagawa are full to bursting too."

"It's been a month, has it?" Tsuchiya said vacantly. "I guess it has. After all, look at how dark that shirt collar of yours has gotten."

"Doctor, yours is even worse," Tanabe said. "How's your boy?"

"Sent him off to Yamagata with my wife," said Dr. Tsuchiya, holding on firmly to his teacup, gripping it tightly with both hands. His body was rocking back and forth just slightly. "I wonder if it's been a month apart for us too? It's strange, really. I mean, back when all of this was just starting, I just had this uneasy feeling, so I, ah, ordered a strategic dispersal, you know? Send them away, and it's less likely to get us all."

He fell silent then, but after a long pause began to speak again in a murmur, as if talking to himself. "Is it because I'm getting old? My only son...he's so precious to me. And I'd kept putting my wife off because I didn't want to be a father. And if this thing gets him too, it would've been better if we'd never had him."

"We first met during the war," Tanabe said. "A lot of young people died then. Children too."

"Yeah." The doctor raised the teacup to his lips. He drank noisily, but his Adam's apple didn't move. Coffee ran down his chin and into his collar. He didn't seem to notice. "Where were you deployed before we met?"

"The Soviet-Manchurian border," Tanabe rubbed at his eyes. "After that, Siberia. For three, no, four years."

Dr. Tsuchiya started slowly rocking back and forward again. When Tanabe looked at him, he was shocked to see that the doctor seemed to have aged ten or fifteen years all at once. Sitting there with his exhausted back hunched forward and rounded, holding on to the teacup firmly, he looked almost like a monkey. His skin was pale, dry, and covered with grime, his cheeks were hollow, and his eyes sunken. His jaw hung loose, covered with the whiskers that had started to appear since he'd stopped shaving. He looked like a dead man. The lid above one of his filmy eyes twitched with a nervous tic.

"Why don't you lie down for just a bit," said Tanabe.

"No, I can't do that."

"What about a shot of glucose?"

"No, I'm all right."

Tanabe took a long pull on his cigarette. When he exhaled, he felt a great wave of drowsiness overcome him. It felt as if it were about to drag him down into slumber right then and there.

"I hear the research center at J School of Medicine has a problem too. They're finding golden staph in patients' bronchial tubes and in the lobes of their lungs again."

"It was like that with the Asian flu too," Dr. Tsuchiya mumbled inside his mouth. "If you got pneumonia because of a double infection of those two, you were pretty much out of luck. After all, antibiotics don't do a thing against staph."

"Well, the really weird thing is that the staph this time isn't reproducing well enough to cause inflammation, and it seems to just disappear almost immediately. Come to think of it, don't you think the number of deaths from complications of pneumonia is rather low this time?"

Dr. Tsuchiya gave a faint nod. "That's true. This flu really is a strange one. There are even double infections with that parainfluenza I was talking about earlier. There are things about it that don't make sense if it's a regular influenza."

"You think so too, Doctor?" said Tanabe around a harsh cough as he crushed out his cigarette. "Leaving aside the issue of just how bizarre it is that the vaccine has such a weak effect, surely you must find it strange that this thing is wrecking people's hearts and making them keel over, one after another, without even getting very sick. Do you think that some other, unknown illness may be going around camouflaged by this flu?"

"That's a...an excellent thought," Tsuchiya said, speaking very slowly with a yawn that looked as though it might make his jaw creak. "But if it's viral...it's probably not something we've encountered before."

"Certainly, people both at home and abroad have suspected such a thing since early on. Even in Japan, I hear they're using a 2.35 Angstrom electron microscope—the best in the world—to hunt for a contagion."

"Japan has the best electron microscopes in the world," said Dr. Tsuchiya in a voice that sounded half asleep. His eyelids were already flickering closed.

"I just wonder if maybe this contagion is conducting a coordinated assault



with the influenza virus group. Hiding among viruses we already know about."

Dr. Tsuchiya was silent for a long moment but at last said, "Interesting," with a slender thread of saliva hanging from his lower lip. "Very interesting, but that's a theoretician's..."

"I'm against the idea of planning countermeasures on the assumption that this epidemic is influenza," said Tanabe in a fervent voice. "We've got to find the other contagion. The *real* contagion."

"But either way...it's already too late now."

"Dr. Tsuchiya—" Tanabe looked out the window, suddenly besieged by a sensation of intense unease. Gray clouds were beginning to appear in what had been a clear blue sky. "*—how long is this going to go on?*"

There was no answer. When Tanabe suddenly looked back at Dr. Tsuchiya, he was still supporting with both hands a teacup full of coffee that had by now lost every trace of its former warmth. He was breathing slow, regular breaths that made it clear he had fallen asleep. His thin nostrils laboriously expanded and contracted like the gills of a dying fish. Tanabe cautiously rose without making a sound, went over to the window, and took a deep breath. After that, he rubbed his eyes with the palms of his hands for a moment and then opened them again.

"There's an end...to everything that happens," Dr. Tsuchiya said in a voice that was unmistakably him talking in his sleep. "Except the problem is...what kind of ending you get..."

Tanabe turned back and watched the doctor, observing his state for a moment. Then taking care to soften his footsteps, he slid past him sideways, exiting the office and heading back out into the pandemonium that waited in the corridor.

*The problem is what kind of ending you get.*

That was true. At some point an end would come, both to the fierce battle they were waging and to this elusive disaster they were fighting. But how would it all end? The numbers of both the infected and the dead were still rising. There was no telling how far it would spread or what course it might take. This limp gray curtain of misfortune—was it to envelop all of Japan? All of the world? If this loathsome Tibetan flu were to infect all of the hundred million people in Japan at a mortality rate of thirty percent, it would mean that *thirty million people* would...

His mouth started to feel dry and he hissed unconsciously when he sucked in the air. Tanabe was shocked at the thought.

*Thirty million. That's...*

But then he realized that right alongside this fear, another bottomless pit had opened its maw before him. For an instant, he felt everything going dark right before his eyes. The death rate had hit thirty percent in the space of two months. Which meant that there was no guarantee that the mortality rate had reached its peak.

The shock hit him, and as was his habit when trying to get a grip on himself, he reflexively reached into the pocket of his dirty lab coat to rummage for his cigarettes. That's when he realized he had left his pack in the office. He turned around and hurried back to the office through the hallway filled with milling patients. He picked up his cigarettes from the top of the desk where he had left them, and realized then that Dr. Tsuchiya was still sitting with the same posture as when he had left him, both hands tightly gripping the teacup even as he slept. Just as he was tiptoeing back out of the office, Tanabe had the sudden feeling that there was something wrong about that posture. It was then that he remembered: in that position, he looked just like...

During Tanabe's long, harsh internment in Siberia, he and the other prisoners had endured poor food, horrible winters, frostbite, itching, harsh work schedules, beatings, prisoners ratting one another out, overwork, malnutrition, and heart-breaking yearnings for home...When they had talked about anything, they had spoken only of the foods of their homeland. When the late spring had come to Ragel for the second time, he had seen one of his comrades-in-arms sitting in the same position that Dr. Tsuchiya was in right now, holding on firmly with both hands to a bowl of thin rice gruel. While rocking his body back and forth just slightly, he had lifted up the empty eyes of his starved face and muttered: "I wonder when I can go back to Japan..." As he had been speaking, his body had suddenly stopped rocking, and that man died still holding on to that bowl of food, as though doing so had been part of his final meditations before facing the afterlife.

"Dr. Tsuchiya?" Tanabe called out without thinking, feeling bad for waking him. "How about putting some of these chairs together so you can lie down? Doctor?"

It was only when he lightly put a hand on Tsuchiya's shoulder that Tanabe realized the man sitting in the chair was no longer breathing.



No sooner had June arrived than the rains began. It was from that point that the bodies began to appear on Ginza Avenue.

Small bodies had already begun to appear in the alleyways of the Ginza district starting around the beginning of May—these were the corpses of plump gray rats. Rats lay dead in roadside gutter openings and on the concrete plates that covered the gutters, swollen and rounded at one end and pointed at the other—tear-shaped balls of short gray fur.

Among the back streets of Ginza, where hundreds if not thousands of bars and restaurants jostled against one another, rats were not an especially unusual sight. Considering the leftover fish and scraps that were constantly being thrown out, the suitable temperatures, and the complex network of gutters, these nasty-looking, sweet little gourmands had discovered for themselves a veritable Garden of Eden, and there they gave birth, multiplied, and filled the shadowed places. They swam through the lamplight of that district praised as Japan's most historic and stylish, darting across the paths of proud ladies who wore their lipstick and powder too thick, occasionally being so rude as to wind themselves around ankles, eliciting screams, coquettish squeals, and opportunities for would-be Casanovas to make their moves. Someone would gravely intone that the rats were preparing to rise up in conquest of humanity, and there the matter would rest.

But now the corpses of these felonious little imps had at last begun to appear on the streets. This began in the dim spaces between buildings and in the corners of alleyways—the cleaning workers who came round to clear away the detritus of late-night and early-morning entertainments would say to one another, "Look at all of these things!" as they left them where they lay with little concern, and the hostesses and bar madams would wonder aloud to one another who it might be that was using rat poison in this manner.

At last, however, on a clear day before noon, a single rat was seen running out into a tree-lined thoroughfare along which there were yet only a few people out walking. Just as it was attempting to cross the street in great haste, it fell over and died. By evening of that day, dozens of newly dead rats lay along the route of the train tracks. At that time, however, the traffic was still heavy, and under the hard, cruel tires of countless wheels, the bodies of the rats were immediately crushed, flattened, dried, and made one with the asphalt.

The next day, however, the number of dead rats was in the hundreds, if not the thousands. Before the eyes of people waiting at crosswalks, numerous rats came crawling drunkenly out of the shadows, only to keel right over, twitch their slender whiskers, and then lie still.

*Is this the Black Plague or something?* people wondered reflexively.

But because investigations by the health and welfare authorities turned up nothing, no announcements were made.

*These rats have been done in by Tibetan flu too, haven't they?*

As people were trading such jests with one another, the dead bodies of cats and dogs began to appear. By the time the steep upward climb in human deaths was beginning to cause panic, Disaster already had its foot planted firmly on the accelerator and was beginning its charge down the incline of Terror. By the time people caught their breaths in realization, they were already being driven ever faster in the very midst of a disaster swelling outward to ever greater magnitude.

It was the morning of the first day of June. A gloomy rain—the first harbinger of the rainy season—was pouring down steadily on the sidewalks of Ginza Block Four, where a handsome middle-aged man had fallen over and died. Another dead body—a woman's—lay on a side street of Block Seven. During the brief moment in which the person who had found her pushed against the door of a public telephone booth, the rain was drizzling against these two corpses, lying so far apart from one another.

In the days that followed, the operator of the police department's 110 emergency line—a man who had always had his hands full enough as it was—was forced to start making judgment calls related to an altogether new type of emergency mobilization. One day, within the area of Tokyo's old city, the bodies of twelve people who had dropped dead on the streets were discovered. The next day, however, this number dropped by seven, but the day after that there were nine. The next day afterward, the number increased by thirty-four. From that point on, both by day and by night, and at home and on the street, the number of people who simply fell over dead from myocardial infarction only increased day by day.

Because most of the victims had had Tibetan flu, everyone thought that influenza was to blame. Typists pounding away on their typewriters were suddenly faltering, nodding their heads forward, and dying where they sat. Inside the train cars pulling in to their terminal stations, passengers who seemed to be sleeping—who showed no sign of getting up to disembark—often turned out to be dead when rail employees gave their shoulders a light shake. On benches at train stations and in parks, in chairs at tea shops and in seats at movie theaters, people were dying one after another.

At night, when men and women crawled into bed wondering whether they

would ever wake to see the light of dawn on the morrow, it was not merely a paranoid or romantic fantasy, but a deep-seated, lonely fear that they could taste all the way back to the roots of their tongues. Because of this fear, many people suffered from insomnia, and others tried to escape their fear by staying awake and raucously carousing all through the night. The entertainment districts in every city were staying open past the curfews set by police, glittering brightly with red lights blazing. To escape from sleep, to forget the time, and to distract themselves from their fear, those who had become possessed by a terror of sleeping continued their wild carryings on all through the night. When police officers weren't careful in restraining these people, they suffered ferocious counterattacks. But after these nights of empty excitement faded into dawn, people learned that they still had to sleep sometime.

As had happened immediately after the war, there was another boom in stimulant use. Increasing numbers of people found themselves addicted, and though the doctors warned them, the sleep deprivation, the overwork, and the abuse of stimulants only weakened their hearts and hastened the hour of their deaths.

People still believed that influenza was to blame. Doctors also viewed it as a special case of influenza and were saying that cases in which it assaulted the heart were "not outside the realm of possibility." Newspapers said that "sudden death syndrome" was symptomatic of Tibetan flu. Eventually, the original name of the disease began to be overtaken by a newer term, and Tibetan flu came to be known informally as "bucket flu." It was right around this time that the second phase of the epidemic caused by infections of the MM-88 contagion was beginning. Only a small handful of men in the entire world knew the terrifying truth about MM-88, and even they had no idea that it had gotten out into the outside world. Announcing its true nature to the world's medical community was strictly forbidden by thick walls of state and military secrecy—suffused with hatred and suspicion born of envy. And so it was that the mechanism of both infection and of disease onset remained unknown to theoretical medicine throughout the world.



"Everyone, may I have your attention, please?" the minister of health and welfare said in the Eleventh Extraordinary Cabinet Meeting on Anti-Influenza

Measures. His expression was mournful. The prime minister, the minister of education, and the three cabinet ministers from the Ministry of Agriculture, Forestry, and Fisheries were all absent due to flu. "Today, I'd like to report again on a new situation we're facing and request your wisdom and assistance in each of your areas of administration. This new problem...well, to tell the truth, it's the problem of how to dispose of the bodies."

The row of cabinet ministers wore depressed, thoroughly exhausted expressions on their faces. At that time, their collective mood was such that if some hanger-on had asked for one of their cabinet seats, any of the ministers would have considered him a gift sent from heaven and hurried off to escape somewhere themselves.

"At present it is June 20. According to reports from the departments of police and sanitation, in Tokyo alone there are between fifty and sixty thousand dead bodies that have been left lying out on the streets. These bodies are unclaimed, and the police have neither the storage capacity nor the mobility to do any more than they're already doing. All of the police and hospital-affiliated facilities in the greater metropolitan area are having problems with people not showing up to claim bodies. The morgues are full, of course, and the bodies they've been forced to stack on their premises are estimated to number over three hundred thousand. The cremation facilities have long since reached the limits of their capacity, and since a large number of those manning the facilities have either died or are now bedridden, their capacity itself is decreasing."

The cabinet members felt as though they could smell the stench of it all right under their noses. It was the same peculiar odor that sometimes floated in unexpectedly through an open window as they rode in their cars through the city. Bodies were carelessly left at the roadside like bags of garbage, muddy shoes sticking out from under woven mats of bamboo grass. Long, long trains of squirming, soft maggots were wriggling across the wet asphalt roads like tangles of beige thread.

"Nationwide, the number of unclaimed bodies left out in the open comes to an immense figure. It goes without saying that this deals quite a psychological blow to popular morale. And on top of that, the high temperatures and humidity that come with the rainy season will be here soon. The bodies will start rotting faster, and with that going on, we can't rule out the danger of yet more infectious disease outbreaks. Presently, illnesses that look like genuine dysentery and false cholera are being reported as having broken out in parts of the Kansai and Kyushu regions."

Bodies with no one to claim them. Families thrown into confusion. The many men and women who were living alone. Here and there among the cities and towns of Japan, the number of corpses lying dead at roadsides was growing greater and greater.

As the minister of health and welfare was speaking, he abruptly recalled tragic images from picture scrolls of the Heian and Kamakura periods—the *Scroll of Pestilence*, depicting all manner of horrible disease in striking detail, and the *Gaki Scroll*, which shows the eternal sufferings of the hungry ghosts of myth.

"In order to secure transportation, uphold the law, and prevent public disorder, we already have a special arrangement for units of the Ground Self-Defense Forces to assist the police. However, the situation is already beyond the police's ability to handle, so with this in mind, I'd like to request the full cooperation of the Self-Defense Forces, even if it's only for getting rid of the bodies. All of the bodies, saving only their personal effects—"

"You want to use the SDF as undertakers?" the director general of the Defense Agency said, his expression sour. "Will the means of disposal be left up to us?"

"What do you mean?"

"Deputy Prime Minister?" said the minister of state who chaired the Public Safety Commission, turning toward the tall man who was deputy prime minister. "Before there's any full mobilization of ground forces, I think it's finally time you made up your mind—"

"—about declaring a state of emergency?" said the deputy prime minister, closing his eyes for a moment.

"Thus far, the public order has somehow managed to hold together, but in extreme situations the slightest spark can set off an explosion. Three incidents of rioting have broken out already, and now there is sufficient reason for concern that the disorder could spread nationwide. Overseas, martial law has already been declared in more than twenty countries."

"But doing that might easily be seen as a provocation by the people," murmured the director general of the Ministry of Self-Governing Bodies. "Instead of declaring a state of emergency first, wouldn't it be better to assign some public security duties to the JSDF, and then let things slide naturally into a de facto state of—"

"What do you think?" said the chair of the Public Safety Commission, turning back toward the deputy prime minister. "Things have already reached a very

difficult stage. At present, things are only getting worse and there's no way to know when they'll start getting better. You're probably thinking it would be going overboard to declare a state of emergency over a *simple case of the sniffles*, but don't you agree that something needs to be done as soon as possible?"

The deputy prime minister's eyes were mournful, and he said nothing for a long moment. The cabinet members were all staring at his mouth.

"Actually," he said at last in a heavy tone, "I called our bedridden prime minister to talk about this subject just a little while ago. To be honest, the prime minister was at that time already in near-critical condition. But he told me directly that I was to make no public announcement of that fact."

A complex shock ran through the entire room. Leaving aside the more immediate effects of his loss, the prime minister's death would significantly redraw the map of the political landscape. Even now, everyone still believed that the present situation was a temporary one. This fearsome bucket flu might rage on for six months, or perhaps for a year. But eventually, once the disease ran its course, things would go back to normal, and the highly sophisticated political day-to-day, with all of its scheming, its struggles, and its compromises, would be recovered.

"The prime minister acknowledged that sooner or later a state of emergency will have to be declared. But as to the question of when to do it, it was his opinion that we should exercise sufficient discretion..."

"I believe that time is now," said the chair of Public Safety Commission Number One. "Naturally, when putting a state of emergency into effect, we must use discretion. Pursuant to its administrative responsibilities, the government is temporarily expanding its power, and the people need to be sufficiently impressed that what is being done is not a threat to democracy. However, if we act too slowly, the effectiveness will be weakened."

"How far-reaching should the special powers that come with the declaration be?" said the minister of justice.

"We're at the point where I'd like to ask for unlimited powers."

"The Diet will never allow that. In fact, most of the representatives would resist."

"At the very least, however," the deputy prime minister muttered, "the government absolutely must have the power to secure foodstuffs, to conduct emergency price regulation, to maintain the public order, to control traffic and communications,



and to secure the transportation system...we need these things under our direct authority."

"And the authority to dispose of the dead," added the minister of health and welfare.

"In any case, what is the Ministry of Health and Welfare's outlook on the influenza epidemic?" asked the frowning minister of international trade and industry. "We can see clearly that it's dealing a terrible blow to our country on every front, but this is just a flu bug—isn't there a little more you people could be doing?"

"You say it's 'just a flu bug,'" replied the minister of health and welfare rather indignantly, "but this Tibetan flu is like no other flu we've seen before. 'Utterly without precedent' fits it like a glove. It's not 'just' anything; this is turning out to be a more frightening epidemic disease than plague or cholera."

"And you can do nothing about it?"

"If this had been a legally designated infectious disease, we could have taken more thorough measures right from the beginning, but it was exactly because this is 'just a flu bug' that our hands were tied when it came to rounding up patients and quarantining them. We have the same problem with regard to the disposal of the bodies now." The minister of health and welfare looked around the room at all of the people assembled. "And now to top it all off—the experts aren't saying this conclusively, mind you—there's a possibility that what's going around might not be influenza alone."

"What?" the minister of transport exclaimed, eyes open wide. "If the experts aren't speaking conclusively, then what in blazes are they doing?"

"*Researchers are collapsing one after another too,*" the deputy prime minister said in a weak voice. "And so are doctors."

"Deputy Prime Minister, if we don't do something, the situation will only deteriorate further. There is no end in sight to this epidemic," said the chair of the Public Safety Commission. "At any rate, it may be too late already. Also, at times of such a...natural disaster, I guess you could call it...it's foolish to discount the danger of a humanitarian disaster brought on by societal chaos, in addition to the harm caused by the natural disaster itself. At the very least, the government has an administrative responsibility to take emergency measures. As to the matter of endowing the government with special powers, if the problem is that you need the Diet's approval, there's an extraordinary session going on right now. You could ask them tomorrow."

"Oh, no," murmured the deputy prime minister, "we can't rely on the Diet. In the plenary session just yesterday, there were just barely enough members in attendance to meet the quorum requirements. Tomorrow, they might not even be able to hold a plenary session."

"Then in that case, you are faced with a monumental decision right here and now," said the chair of the Public Safety Commission. "As a statesman, there are times when emergency steps have to be taken, even if procedure has to be ignored. We'll all have to bear our share of the criticism that comes later. In some cases, this may even have legal repercussions. But even so, this is what has to be done."

The deputy prime minister had his eyes closed. Conservative administration or no, there were times when a leader had to take responsibility for making a decision like this. Whether such action was appropriate or not could only be judged in hindsight, by looking at the end results. And in any case, human beings were simply incapable of taking *full* responsibility. You could cast about trying various things at random, but in the end there was nothing you could do except whatever seemed the best choice at the time.

"Very well, then," said the deputy prime minister. "In that case, I've decided."

"One thing I need to say, however," said the director general of the Defense Agency. "Out of two hundred twenty thousand of our nation's finest, only one hundred forty thousand are capable of being deployed. Barracks living means that the rate of infection is high. Don't they say that even the Spanish flu first broke out among soldiers in combat?"



Some of the representatives had to be carried out with high fevers, and the plenary session of the House of Representatives only barely met its quorum requirement, but the majority and minority parties somehow managed to agree on the passage of a grant of special powers to the government for dealing with "this exceptional state of emergency." However, over at the House of Councilors, the plenary session had just been called off, and the government began to take emergency measures with the approval of only those members who had been in attendance.

However much they may have been called "emergency measures," however, the new policies were unable to accomplish much outside of the regulation of food-stuffs and supplies. The fact that the total number of patients was approaching

thirty times the number of hospital beds, combined with the fact that the number of doctors available to treat them had dropped to half the usual number, meant that even with these new government powers, there was little that could be done. The food companies' research labs and factory facilities were already being used for the production of vaccine.

One day in mid-June, a company employee who had come to Tokyo Station intending to return to his hometown and get away from this big, functionally paralyzed city found it overflowing with so many nervous, cornered-looking people that he was pushed backward, unable to board his train. There was something unusual in the air that he found extremely disturbing.

"The train can't leave!" said a feverish-looking, red-eyed man, sticking out a chin that was covered in unshaven whiskers. "I don't know where you're headed, but they're saying there's been another accident on the Central Line. The west-bound Tokaido line is a mess, so you'd probably better forget about it. I just asked at Ueno, and the Tohoku line is somehow still running. The express and limited express trains have all stopped, but there are still three locals a day."

"How in the world did this happen?"

"You really need to ask, buddy?" the man replied. "Drivers are keeling over from bucket flu at the stick, trains are crashing into cars whose drivers have died at crossings, flagmen are dropping dead—and before anyone can finish clearing up one accident, here comes another train barreling into it. It's dangerous out there, so they're running the trains really slowly now. And then getting run into from behind."

"The special train bound for Ōfuna will be departing shortly," croaked a husky voice from the loudspeaker. "It is unclear when westbound service for Ōfuna on the Tokaido line will be restored. Presently, there is a train derailed at Hino Station on the Central line."

The wall of people began to rumble toward the ticket gate like an avalanche. Angry voices, wailing cries, and the restraining admonishments of station employees all ran together in a deafening roar that resounded throughout the building. Suddenly, there was the sound of a gunshot, and the form of a soldier holding a smoking carbine aimed at the ceiling rose up before the trembling multitudes. The confusion and chaos ceased for just a moment, but then began to turn back in the opposite direction. Someone threw an empty juice bottle, which struck the soldier right in the side of his head and knocked back his metal helmet, exposing a tense,

tanned, youthful face. The soldier staggered drunkenly for a moment, his face went pale, and then he recovered his grip on the gun. After he had straightened his helmet, he fired another shot at the ceiling.

On June 8, all commercial air routes were shut down on orders from the government. This was because nationwide there had already been more than a dozen accidents caused by the sudden deaths of either pilots or air-traffic controllers. The national railways, including city and suburban lines, were running, albeit with reduced service. For safety purposes, two people worked as a team, driving the trains slowly, but even that couldn't stop accidents from happening.

Here and there on the roads, cars that had had accidents lay flipped upside down, burning. The drivers had died as they were driving them, and because the wreckers couldn't clear them quickly enough, traffic on the roadways—main highways included—was gradually falling into a state of paralysis. The state was suppressing the sale of gasoline in an effort to ease the gridlock on the roads caused by accidents.

Now, all of the expressways were being superseded as the transportation methods of choice by boats. Boats were slow, but the people piloting them had greater margins of error, and they were generally less dangerous. However, as crises still occurred because of problems with harbors and lighthouses, travel by night was forbidden, and most boats were being used as emergency transports for the necessities of life, starting with foodstuffs. Very few of them were available for purposes of general travel.

The autonomous activity of workers in all manner of vital industries—particularly in the key areas of electricity, traffic, transportation of goods, and communications—was outstanding. Labor unions, which had at first taken an intensely critical stance toward the less-than-thorough nature of the government's measures, had at a certain stage turned around and undertaken to secure the most vital industries voluntarily. This was because they had agreed to do so when the government, in declaring martial law, had appealed directly to the unions instead of placing the key industries under military supervision. The ones who objected most vehemently to this included a number of executives, venture capitalists, and oddly enough, far-left political parties. A number of the capitalists had had to cope with having the org charts of their businesses thrown into chaos, as the labor unions had taken it upon themselves to exercise "management from the bottom up."

"The more they work the more the damage spreads!" the CEOs argued. Without even a verbal promise from the government of any realistic compensation, they also opposed keeping their businesses in operation for no other reason than the good of society. The far-left parties had at first opposed the labor unions' move to "prevent" social disorder, preferring instead to point out the failures of the government's measures, contribute to the chaos themselves, and demand the resignation of the cabinet *en masse* (an appeal which was later rescinded). The workers, however, were greater in number than either of the other groups, and they managed to push through the opposition.

"I just don't get it," muttered a communications worker nearing the age of retirement. "This whole situation somehow feels a lot like the national unity movement just before the war. Back then too, we were hearing about a 'crisis for the Japanese people' and a 'national crisis.' The Japan Federation of Labor was dissolved, and we ended up with the Industrial Association for Serving the Nation. I was still young, but I remember how we got caught between solidarity with our coworkers and the crisis the country was facing. We kept getting sucked deeper and deeper into the national unity government. We knew the foreign countries were completely merciless. At least we thought we knew. But that was because they really fed us that line, so we were lost in the illusion of 'our great duty as citizens' with the farmers and the shop owners and everybody joining hands...and that's why we did it. I was young, but still, there are similarities this time too. We're under so-called government control now, after all."

"You can't see what's happening for what it is even at your age?" asked an old man who had already retired and was now working as a custodian. He smiled toothlessly. "This is completely different from what happened back then. The 'enemy' isn't somebody in some other country; it's influenza. I have no problem with calling a truce with the conservatives in the government and cooperating with them. Actually, I think it's what we need to do because, frankly, this is no time for infighting. If you ask me, that bunch in the government now should be looking for the chance to ditch their responsibilities and head for the hills. Then they should think about what in the world happens next after this 'state of emergency' is over. Even in the present conservative government, we've got some really good men. It pains me to say it, but as politicians, these guys are a cut or two above the progressives. They're really giving it all they've got, so I don't see them running away. At times like these, I feel pretty grateful to live in a country like Japan,

without all the egotistical leaders like they have overseas. They're all stingy, but at least there aren't any big villains. They'll all do their best in their own way. Devoted public servants. That's what they are. Don't give me that look, now! Words always have two sides. But more than that, they should be thinking about what things will be like between the different forces in society once this craziness is over. 'Cause when the disaster is over, the 'undamaged' people who ducked away from this fight are sure to come out of the woodwork and end up holding power. Age should count for something, so you need to think these things through in the most calm and collected manner and teach the young fellows. That's why we need to be on the lookout for the ones who think they can profit from all this ruckus. After all, lumberjacks and roofing tile makers profit from typhoons, food companies profit from food shortages, and pharmaceutical makers profit from colds and flu..."

*When this is over.*

The old men were thinking mainly of when this disaster would be over. The old men had had plenty of experience with living through disasters, and they knew how these earlier disasters had ended, and what kinds of things had come about after they were over.

When this is over.

Everyone was thinking that this disaster had to end sometime—that for humanity, disasters were transient things.

The population of Europe had been cut in half by plague in the thirteenth century, and yet Europe had lived on. Fifty million people had died of Spanish flu, and yet these deaths amounted to nothing more than a scratch or an abrasion for the civilization that existed at the dawn of the twentieth century. There had been two world wars, earthquakes, major floods, and famines, but humanity survived. Some believed that the human race could survive even a nuclear war. And come July, nuclear weapons would be done away with altogether. Many patient people were pouring their efforts into reconciling this upheaval to their daily lives, silently enduring their difficult circumstances. It was rare for people to get such terrible flu.

"I wish this thing would just hurry up and run its course so things can go back to normal," they would say. For a long, long time, for over a thousand years and several centuries, the Japanese people, snug in the comfort of their little civilization, had held an unconditional trust in their society and in their land. They

didn't know, however, that within civilization was something akin to a point of no return, and once things unraveled beyond that point, all of the various elements of the civilization that supported a sophisticated and vibrant human society would begin to work retroactively toward utter dissolution.

And beyond that dissolution there awaited what was, in the long history of the planet Earth, a quiet, exceedingly familiar drama which was entitled *The Extinction of a Species*.



The riots remained small-scale and sporadic. People still believed in tomorrow, and so they worked to preserve the public order. Viewed globally, however, Japan was a rare example of peace in the world. In Europe and the Americas, countries were sliding from states of social unrest into utter anarchy. Already, there were many countries in which rioting and looting, widespread panic, and bloodshed were growing ever more generalized by the day. In Japan, people were fleeing from the cities to regions where it at least looked like the Tibetan flu had not yet raged to its fullest. Skirmishes had erupted here and there between those trying to get away from the cities and the local residents who wanted to keep the interlopers out of their towns, but that was the worst of it. However, even in regions where Tibetan flu had not yet spread, "sudden death syndrome" made its appearance. Eventually, with the evidence before their eyes, doctors had no choice but to confirm the fact that there was a second, truly terrifying disease going around that was being masked by Tibetan flu.

By that time, however, the entire framework of modern medicine was already well on its way toward utter collapse. With two thirds of researchers having been lost, it was fair to say that there was almost no hope left for the discovery of the MM-88 contagion, with its complex and obscure infection mechanism, which caused that infuriatingly complicated viral disease. And even if it were to be discovered, what could possibly be done about it? There had been people at the Germ Warfare Research Laboratory in England who held all of its secrets, but every one of them had died in early June.

In this way, Japan and the rest of the world, having lost the chance to learn the secrets and the cause of the disaster that was assailing them, continued on desperately in their fruitless, if praiseworthy, efforts.

Desolation arrived in almost no time at all. On June 10, regions throughout Japan's four quarters were designated as power-conservation zones, and the following day, June 11, those restrictions on the use of electricity were expanded nationwide. Daytime power for use in homes ceased altogether. Because of this, battery-powered transistor radios and television sets skyrocketed in price. In big cities, running water was available only at certain times of the day. This went nationwide as well on June 14—the same day that trains stopped running on all branch lines throughout the country. Newspaper companies and broadcasters, growing desperate, tried to ensure their continued operation. Newspapers which had, just one month before that, reached volumes of sixty-four pages in their morning and evening editions, which had been filled with full-page advertisements and silly filler stories as they competed for column inches, had now been reduced to putting out eight-page morning and evening editions, published in half-sized tabloid format and as wall-newspapers because the paper companies couldn't find enough workers to deliver them.

While all this was going on, the reporters labored all the more desperately to relay fully what was happening in the world. It was as if the entire rich, gaily-colored fabric of society had been torn away all at once, exposing a severe, bony framework of functionality—a skeleton of minimum bare necessity. The news arriving from throughout the world and throughout the nation was all bad; every last bit of it. The opinion was even put forward that it would be better to stop publishing newspapers altogether because all they were doing was discouraging their readers. Even so, the reporters did not cease their activities. Naturally, editorial writers continued writing words of encouragement, and after they had fallen, the second-string reporters took their place. Beyond informing and encouraging their readers, the reporters believed that newspapers now had a vital function of allowing people to call out to one another in the midst of chaos. Even if the news was bad, to stop publishing it would throw the people into the midst of a dark silence in which they would despair. And so at least they continued putting out the paper, supplying an image of "society" and "order," based on a high-instinctual belief that maybe the population could be helped by it. To somehow continue giving the people a symbol of order, they climbed over the corpses of their fallen colleagues to keep the presses running. They knew that Japan might be destroyed. Even if nobody spoke of it, reporters who were used to thinking in terms of the big picture could foresee the worst-case scenario. However, even if the nation were destroyed, even



if everyone floating in the sea after a shipwreck drowned in the end, it would still be just a little better if they could die calling out to one another, rather than being lost in the midst of pitiful, solitary darkness.

In like manner, the television and radio stations continued working as though possessed to maintain their programming schedules. Despite the fact that thirty percent of local stations had already gone silent—and despite the fact that almost all of the flagship stations had cut their broadcasts to a combined total of four hours a day for morning, noon, and night—still, they kept on broadcasting. Aside from international and domestic news, broadcasting stations put a great effort into producing entertainment programming. They were like parents on the verge of freezing to death, trying desperately trying to coax smiles from their freezing children. One radio station—transistor radios had spread far and wide—continued playing popular songs both old and new, as well as pop tunes and jazz twenty-four hours a day.

Day by day, the desolation spread throughout society, and all manner of local religions, both old and new, began to run riot with ferocious energy. Some people danced wildly, others packed into small houses, jostling against one another as they chanted sutras.

“The end has come for this world because human beings have never done anything but evil. Everyone will fall into *Jigoku* now.”

“Brothers! Surrender and you can all be saved!”

Yes, what else could they do except pray? People who prayed were people who were still fighting. The career intelligentsia and the leaders were completely ineffectual, but some of the priests, preachers, and thinkers were still crying out. But were their cries of any help? Even people who knew perfectly well that their prayers would not be rewarded were praying now as well. If there had ever been a time to pray, this was it. The trains were stopped, and now the electricity was starting to disappear. When fires broke out, they weren’t extinguished; the flames just spread wider and wider. At the roadsides, in the houses, in the entrances of the stations and office buildings, countless corpses lay, swelling up and rotting. The humid climate gave vigor to maggots and bacteria, and some bodies had already skeletonized. The stench of death that hung over the world was horrible, and the wings of desolation sounded a great wind as they spread out over the land. Bodies were everywhere: in cars that had been torn apart in collisions with telephone poles, in the muddy water of half-planted rice paddies, on the

lawns of parks and in shrubbery, in trains that had stopped in transit between stations, at roadsides, at the doorways of houses, and even in the water of stagnated canals. Even in high-end residences and hotels, there were often a number of bodies lying around, barely covered by the white cloths laid over them. The public housing projects were already huge graveyards. Beside a sandbox lay the putrefying corpse of a small child, left uncollected because his parents were already dead.

The city of Tokyo, which had once overflowed with twelve million people, was now turning into a vacant necropolis. The cars that had once crowded its streets were gone now. The windows of empty buildings, the grid of highways now desolate and without motion, the subways that no longer ran—impossible to enter now because of the hydrogen sulfide released by an abundance of rotting corpses.

Blue methane flames rose up from vents here and there along Ginza Avenue, and the entire city was suffused with a stomach-churning miasma.

The sight of things that moved was becoming rarer and rarer in the city, and whenever a human form did occasionally appear during this time, it was a silent member of the Self-Defense Forces, executing his futile mission to dispose of the bodies. They wore gas masks whenever working in the city, and the strange rubber masks made them look like carrion-eating ghouls. At first, they handled the bodies with great care, as though dealing with casualties of war. But by the end of the first week following the commencement of operations, the soldiers were no longer capable of worrying so much about public opinion. They dug holes and pushed the bodies into them with bulldozers. At last, the disgusting work that had picked up nicknames such as “Auschwitz ops” and “Banana ops” began. Bodies were collected matter-of-factly, stacked up in large heaps, doused in gasoline, and burnt with flamethrowers, recalling the time when a large shipment of bananas that had arrived from cholera-stricken Taiwan had been burned upon arrival at Kobe Harbor.

Heavy columns of thick black smoke rose up from the pyramids of dead bodies, billowing up into the oppressive gray sky of the rainy season, and loud pops came from the bodies as they swelled up amid the heat of the flames. The voices of people reciting sutras came spilling out from nearby houses as though they were crawling along the ground. Then at last the rains of what might have been called a record-breaking rainy season arrived, falling long and heavy, like a curtain falling on the bodies and the desolated land.

By June 30, eighty million people had died throughout Japan. However, at that time, somewhere under twenty million were still living.

#### 4. Antarctica

"It sounds like it's getting really bad," murmured Tatsuno. He was in his own room—that is to say, in the tiny room containing only his bed and his desk—facing the wireless.

"Did you get hold of any of your ham radio buddies this morning?" asked Yoshizumi from the doorway. Besides Yoshizumi, five other members of the wintering team were crowded into the tiny room, and all of them were leaning forward, eager for even the smallest tidbit of information about the horrible circumstances overtaking the northern hemisphere.

"Yesterday, I got a ham operator in the Fiji Islands. But the signal was bad between here and Japan..." Tatsuno bit his lower lip and, looking almost as though he were in prayer, began to slowly turn the dial while continually transmitting a CQ sign.

"JA7GK," an accented, powerful voice suddenly answered. Everyone caught their breath for a moment, but then sighed in disappointment as they recognized the voice. It was the guy who went by the handle of "Ahab" over at Australia's Mawson Station—right next door, as it were, to Showa Station. "Hello, JA7 George Kepler. Have you managed to get ahold of anyone?"

'George Kepler' was Tatsuno's handle. "It's no good," he replied. "The signal's bad, so there's been nothing since yesterday. How about you?"

"There was a doctor in Uganda at five-thirty this morning, but we could only talk for two minutes." Ahab's voice usually sounded as cheerful as a trumpet, but today it was mournful. "Things sound really bad out there. The doctor was wondering out loud if Central Africa might be completely wiped out by now. Not just the people either; the lions and the elephants too."

"So elephants can die of flu too, can they?"

"Apparently, it's not flu. Haven't you heard, George Kepler? The flu's going around, yes, but there's another, unknown disease that's going around with it. That's what the doctor was saying, anyway."

"What else did the doctor say? How many have died?"

"He said he didn't know for sure. There hasn't been any signal from Cairo

Broadcasting in over ten days. Zanzibar's gone silent too. This is just that doctor's best guess, but he said that about half the population of the entire world may have already been laid out by this thing."

"*Half?*" Tatsuno said in a voice that was suddenly much higher pitched. "One and a half billion? What do you mean, 'laid out'? Do you mean that they've caught it? Or that they're—"

"He told me that 'half are probably dead.'" Ahab's voice was cracking up and he sounded near to despair. "And he said that more than eighty percent of the people on this planet probably have it. Can you believe such a thing?"

The people standing behind Tatsuno had gone pale. Not one of them uttered a word. Already, they had heard similar things again and again, but hearing it now, the shock was being rubbed all the more deeply into their bodies.

"That doctor said he wasn't long for this world either. And then finally his signal dropped off. He never said 'over.' He just said 'adieu.' Hey, listen..."

Ahab hesitated for a moment, and suddenly a ham operator called Frankonei from France's Dumont d'Urville Base broke in speaking his obnoxiously masterful English. "JA7GK, I've managed to listen in on a couple of amateur hams in Reims and Rio de Janeiro. Shall I read what they said to you?"

"What did they say?"

"The ham in Rio says, 'It's a mountain of corpses here, the power's out, there are fires, crazed gangs are rampaging out of control, and the death toll keeps climbing. I estimate eight thousand survivors still in Rio. The residents of Brasilia have been wiped out, and the stink is so horrible I can hardly stand it. The sea is covered in bodies. The end of the world has come. Amen.' Then the ham in Reims said, 'Reims is burning, and the batteries will give out soon. I don't see how I'll be able to get any more. My wife committed suicide ten minutes ago. God has sent this disease to wipe out a sinful world. I can't hear a thing here except the sound of the fires. Clear weather. Eloi, Eloi, lead us into your presence... Ah, confound it all! Wiped out by influenza! What a scornful way to destroy us! Amen.'"

"Amen..." said Ahab. "George Kepler—did Japan's public broadcasting ever come back on? At 1300 and 1500 hours, there was a little noise out of Sydney, but nothing since."

"We can raise Chōshi by way of their international telephone, but the signal fades in and out," Tatsuno said. "Yesterday at 1400 hours, they spoke with our station's radio station. They're having trouble supplementing their power source,

apparently. There are only eight people running things over there at present, and three of them just recently came down with fevers. There's been nothing from them since then."

Neither Ahab nor Frankonei said anything for a moment. Beyond the crackle of white noise, they could hear the mad roar of a blizzard outside. But even the blizzard seemed about to die down.

"Starting at 1710, Telstar 25 should enter an orbital position where we can communicate with her," Ahab said simply. "All we can do is just pray that there's a satellite broadcaster in some country somewhere that's transmitting television signals. Over and out."

Ahab cut off his signal. Frankonei also withdrew. The five men who had their heads stuck into Tatsuno's room left in ones or twos, until only Yoshizumi was left. Tatsuno still sat in front of the wireless, continuing to transmit his call sign.

"Tatsuno," Yoshizumi called. "You crying?"

"So what if I am?" Tatsuno didn't turn around, but his voice was unexpectedly fierce. "If I'm crying, what's it to you?"

With that, Tatsuno suddenly burst into tears in front of the wireless.

"How can something this *stupid* even happen!" he said with a sob. "This is *ridiculous*... Japan destroyed in less than two months, and rest of the world is..."

"Tatsuno," Yoshizumi said, gently putting a hand on Tatsuno's shoulder from behind. "Somebody's calling you."

Tatsuno sat up straight with a gasp and looked at the speaker. Amid waves of hissing static, a voice that seemed to be calling out Tatsuno's call sign could be faintly, oh-so-faintly discerned, though it was apt to be scrubbed out by the white noise and disappeared at times.

"JA7GK...Hello, JA...K..."

"Station QRZ?" Tatsuno queried, cranking up the transceiver's output all the way. "Hello, this is station JA7GK."

"JA7GK..." The faint voice sounded as if it were floating on waves that flowed in and ebbed back out again, but even so, it could be heard more distinctly than before. "Hello, JA7GK. This is JA6YF—"

"That's Kyushu," Tatsuno shouted in a choked voice. "Hello, JA6YF, this is JA7GK. How's your reception? Over."

"JA7GK, this is JA6YF. We are DXFB over here. How's your DX over there? Over." "DXFB" meant that reception was good.

"This is JA7GK. We are DXFB as well," Tatsuno said, suddenly choking up as big tears spilled down his face.

"Hello, JA6YF—where in Kyushu are you broadcasting from? Over."

"This is JA6YF, we're on Yakushima..." The voice vanished into a snowstorm of static, then returned moments later. "...Kyushu. The mainland...all regions silent. Hello, JA7GK, can you hear me? This is JA6YF...this is Japan's last...JA7GK, where are you broadca...Over."

"This is JA7GK, the ham radio at Showa Station, Antarctica," Tatsumi went on, not even trying to wipe his tears. "How are things on Yakushima and the mainland? Over."

"I don't know about the mainland. There's smoke on the horizon. It looks like Kyushu is burning. Hello, JA7GK, ninety percent of us on Yakushima Island are dead. Many via suicide. Most of the survivors are on the beach praying or something." Suddenly, JA6YF coughed violently. It was pitiful how long the coughing spell went on.

"7GK, hello...can you hear? Is Antarctica safe? If so, please call...hello..."

"Who?" Tatsuno asked. "Who? Who do you want me to call?"

"Get a doctor...and tell the hams and at every station...call a doctor who speaks English...call for WA5PS...it just spoke...was requesting transmission. WA5PS is...scholar...Amer..."

"Hello, JA6YF!" Tatsuno practically screamed. "What's happening? I couldn't catch that! Hello, this is JA7GK—"

"Looks like this is it for me..." The voice of JA6YF—a man apparently well educated and young—had grown old and pained. "My heart is...WA5PS wants to tell you something. Well then, JA7GK, thanks for talking to me. This is JA6..."

Emanating from a faraway geographical point on a tiny volcanic island covered in tropical Japanese cedars—more than ninety degrees of longitude removed from Showa Station—came the sound of JA6YF, the last ham radio operator in Japan, sliding from his chair and falling to the floor. It made an unexpectedly clear thump, which leapt across more than ten thousand kilometers of sky and sea, arriving in Antarctic skies to burst at last from the speaker before Tatsuno.

"JA6YF!" Tatsuno all but shrieked into the microphone. "Hello, JA6YF! Are you all right? Hello—"

In a small, simply painted cottage on a slope not far from Yaku Harbor on Yakushima Island, a young man who had just breathed his last lay crumpled on the

ground beside a handmade chair that had fallen over. A red light still blinked on top of the black box in front of him, and from the old-fashioned speakers placed on top of it, Tatsuno's cries could be heard amid the hiss of static.

"Hello! JA...F! Hello, please respond, J6YF..."

Yet now there was no longer anyone left there to hear him. In the stifling heat of early summer on that southern island, a warm breeze wended its way through the thick cedar groves and into the cottage, where a young scorpion that had just shed its skin was crawling along the top of a desk. A single snake slithered slowly across the floor. The scorpion crawled over the hand of the fallen man, his fingers already so cool that the creature made no move at all to sting.



"Shhh!" More than ten thousand kilometers to the south, amid the Antarctic midwinter, Tatsuno strained his ears as he listened for any response. "Come on, give me something..." he said.

There was nothing but silence though and white noise.

"I hear a bird singing," Yoshizumi said.

"Impossible!"

"Try calling WA5PS," Yoshizumi said. "Like JA6YF was saying. He said to get all the hams out there to try to get hold of him. Maybe WA5PS has something he wants to tell us."

"All right," Tatsuno said with a nod once he had finally gotten hold of himself again. "Go get Torigai, would you? He can speak English."

Tatsuno began calling up his other ham buddies all across Antarctica.



Professor Nakanishi, captain of the observation team, together with the core members of his research group, crammed into the designated radio station of the Japanese wintering team at Dome III of Showa Station, which housed the twenty-kilowatt wireless transmitter. Upon request from the leadership of the American, British, Soviet, and French wintering teams, an emergency meeting was being held over the wireless. Three years prior, installation of automatic relay

stations at the Antarctic stations of every nation that had an exploration team present had begun, so that they would be able to communicate in real time. It was only during the summer of that year that this continental wireless phone network had at last been completed.

The special relay center for the western hemisphere was run by the US Army Corp of Engineers communication division at McMurdo Station, while the eastern hemisphere's relay was run alternately by the Soviet Union's observation team at Mirny Station and Australia's communications team at Davis Station.

The soldierly—if slightly haughty—voice of the US commander-in-chief flowed from the speakers. "Everyone, may I have your attention?" he said. "This is James Conway, commander of the American stations. Are the leaders of each nation's stations present?"

Captain Nakanishi looked for a moment like he was about to say something into the microphone, but Shintani—who was in charge of the wireless station—motioned for him to keep silent. Broken occasionally by intrusions of static or of people calling out to one another in the background, a faint voice came through calling out a call-up code. "5000KC—Is this all right? It is? Hello, Queen Maud Land, Norway team, come in please. Adjusting..."

"Admiral, please," somebody whispered, and then Vice-Admiral Conway cleared his throat and began to speak. "To all of you who are in charge of your various nations' Antarctic stations, I've called this emergency radio conference on my authority as representative of the nation in charge of the Multinational Antarctic Observation Teams' Mutual Communication Council. The topics of this meeting are, of course, our homelands, and the disaster being caused by this epidemic disease that is sweeping across five continents."

"Adjustments for the eastern hemisphere complete," an accented voice said, breaking in again. Mirny Station, apparently.

"Forgive me, but would you mind if we did a roll call?" Admiral Conway said politely. "At this time, it seems that relays have been established between all of the various stations across Antarctica. Is Captain Barnes of Britain's Shackleton Station present?"

"Present," Barnes replied in a curt, sportsman's voice.

"Is the overall head of the Soviet Union's stations, Dr. Borodinov, present?"

"In front of the microphone," replied a voice with a terribly thick Slavic accent.

One after another, he called them: Professor Blanchot of the Belgian team at



Blade Station, Captain King of Davis Station for Australia, Major Blaine of New Zealand's Scott Station, Professor Bjornsen of Norway's Queen Maud Land Station, Dr. la Rochelle of France's Dumont d'Urville Station, Lieutenant Lopez, representing Argentina on the Palmer Peninsula.

"Everyone, the main purpose of calling this emergency conference is that at last night's multinational station communications meeting, every team excepting Norway's judged that official communications with their homelands have ceased. The teams from New Zealand and Japan are receiving intermittent, broken transmissions, but the cessation of even these is most likely only a matter of time. About four percent of broadcasting stations and communication facilities worldwide are still transmitting, but they don't seem to have the wherewithal to answer calls from the South Pole. Even the amateur wireless operators are slowly disappearing. We can soon expect full radio silence."

"We've been abandoned at the South Pole," said the British representative with a hint of irony in his voice.

"No," said the halting voice of the Soviet representative Borodinov, "Most likely, they have too much on their own hands to even think of us now. An awesome and terrible thing has happened to our country. Our premier and vice premier are both dead. Hard as it is to believe, the last transmission we received said that one hundred million have died. It's insane. It's impossible. Science, civilization, and the socialist system are as good as gone. Everything has been turned upside down and ruined. I do not know how many people of the fatherland still live. And even if some still live, who can say whether the nation can endure?"

"It is as the Soviet representative has said," Admiral Conway said, his tone solemn. "It's beyond our ability to take in, but those are the terrible circumstances we face."

"The question of whether our countries can still continue to exist is a very serious issue," said the icy voice of Dr. Blanchot, the Belgian representative. "Europe may continue to exist, but..."

"Admiral Conway," Dr. la Rochelle said. His voice was shaking with an anger that had no outlet. "France's stations were the first to lose official communications with their homeland. That's why we find all of this so exceptionally hard to believe. Do you have any hard, clear-cut information at your bases? *What in the world has happened out there?*"

There was a brief silence.

Static.

"What happened...is what all of the wintering teams already know has happened," Admiral Conway said. "In March of this year, influenza broke out in central Asia, and—"

"But, Admiral Conway! Everyone! Can you really believe that something as simple as influenza can kill off all three and a half billion human beings on this planet? And in the space of three months!"

"About ten days ago," said the Norwegian representative Professor Bjornsen, "we received a transmission stating that Oslo University's Infectious Disease Research Center had announced the real culprit. It's not just that new form of influenza; another completely unknown terminal disease has been spreading in parallel with it. That's the real killer. At any rate, it's quite an incredible disease. It destroyed the world's disease prevention system before anyone could find it."

"What kind of disease? Is it plague?" a new voice cut in to ask.

"Nothing so simple as that. It seems this has been brought on by an entirely new kind of contagion that has never appeared on Earth before."

"But even if that's so, what contagion could possibly wipe out the entire human race in just three to six months?" la Rochelle asked.

"You can say that because you don't understand the power of microbes. When the conditions are right, microbes replicate with frightful intensity and do... frightful things." said Dr. Borodinov. "A single drop of lactic acid bacteria, under the right conditions, will produce *tons* of lactic acid over the course of only one night. Just a teaspoon of the botulin toxin weaponized and deployed via missile could kill every human on Earth. And during a serious outbreak of a contagious disease, it won't just be the disease that kills. Many things that are worse than the disease will happen in society."

"But what about us, here?" Dr. la Rochelle said.

"We're sealed in by ice. In other words, we're quarantined from the rest of the world. We're far away, and right now we're in the middle of a polar winter. Nobody comes here, so nobody brings the germs. And most likely—or hopefully at least—this germ cannot thrive in such low temperatures."

"And that's our problem," Admiral Conway said. "Antarctica is said to be 'the germless continent,' and at the American bases in particular, we've always taken health and sanitation extremely seriously. However, summer is only six months away. If those germs were to be carried here from the northern hemisphere..."

"At this rate, do you really think any supply ships will be coming here next year?" asked Captain Barnes.

"That's a problem as well," Admiral Conway said tightly. "Suppose that we here at the pole find ourselves completely isolated from the rest of the world and have to survive on our own for some period of time—possibly even for years?"

Silence. Outside the double wall of Showa Station's wireless room, the whipping, wild winds of the blizzard roared. "In the absolute worst-case scenario," New Zealand's Major Blaine added bluntly, "Antarctica may be the only place that survives."

"God save us," said Captain King from Australia. "Living amid all this ice."

"Actually, I've been thinking about exactly that," said Admiral Conway. "At the very beginning of this, we received news to some degree of what was going on all over the world, but then, as the situation has deteriorated, it's become almost impossible to get accurate information about what's happening out there at present. However, my impression from listening in on the transmissions of others is that things are only going from bad to worse."

"Currently, we're in the middle of winter. Any way you look at it, we're sealed away in ice for the next half of the year. We have no way of communicating with the outside world. However, considering the problems of sanitation and resupply, I don't think it's too early to think about creating a formal body to allow each nation's wintering teams to confer and cooperate with one another."

"Resupply is the most pressing concern," said Lieutenant Lopez from Argentina.

"Yes, it is. We haven't a clue what things are like out there, but starting now we have to think about these things. How many years will we need to live here? How will we continue to survive? Seals and penguins can replenish our food supply somewhat, and another fortunate thing is that America, the Soviet Union, France, England, and Japan are all producing electricity with nuclear power generators they've brought down here. With those, we should be all right for three, four years. What'll we do for powering our vehicles, though? And eventually, we'll have to think about using Antarctica's coal deposits to supply ourselves with electricity. And how to most effectively use the resources that each country has on hand."

"We may all end up living together, eh?" said Professor Borodinov.

"Yes—yes, that's true. Everyone, the one thing that we all have in common is

that we live in Antarctica. Like it or not, we are already on our way to becoming a single collective bound to a common fate. There are barely ten thousand people hunkered down in the ice of this continent, and they may end up being the last survivors of humanity. The bare handful of resources and facilities we have here may end up being the last remnant of civilization. When that happens, we'll have to pull together with what little strength we have and live by helping each other."

"Once the weather settles down around all of the stations," began Captain Nakanishi, his heavy jowls moving for the first time, "we'll need all of the leaders to assemble in one place somewhere to hold a real meeting. If possible, to form a unified organization."

"Seconded," said Captain Barnes.

"And each team should bring a list—as detailed as possible—of whatever resources, personnel, and facilities they have. We'll need to talk about those things."

"I think we'll have some data soon from the unmanned weather observation devices," Admiral Conway said. "I'll send around a general weather map, and I'd like each station to make corrections. As for the first assembly..."



Dr. Torigai, the number two man on the station's medical team, sat before the wireless in Tatsuno's room, his face blanching as he transcribed the long, hard-to-catch message being transmitted by WA5PS. Tatsuno listened in intent silence as he was running the tape recorder.

"This is really quite something..." murmured Dr. Torigai. "I need to meet with the medical team to discuss this."

"Actually, what we need," Medical Department Chief Iguchi added in a low tone, peeking at Torigai's note pad, "is a microbiologist. You say it's an infectious disease caused by a new type of virus that *hides* inside Pfeiffer bacilli or golden staph? We need to ask all the other stations to get everyone who's an authority on microbes together to discuss this, if possible."

"Dr. Borodinov, the captain of the Soviet team, is a geophysicist, but he's also an authority on biochemistry and microbiology," offered Yoshizumi. "He was once a student of Oparin."

"It's finished," murmured Tatsuno, picking up the microphone. "Hello, WA5PS?"

There was no answer, but after a few minutes, WA5PS suddenly started speaking again, repeating exactly the same words that he had said before, starting from the beginning.

"A recording!" Tatsuno said. "WA5PS is most likely already dead."

"Though at the very end he's given us some very important information," said Dr. Torigai, looking up with a sad expression on his face. "We may not know who he was or where he came from, but one thing is certain...he was truly a great scientist."



In the dark depths of the North Sea, America's Polaris III-armed nuclear submarine *Nereid* sat motionless and silent on the seafloor, listening carefully to the world above the waves.

"This is weird," Communications Officer Curtis said quietly. "Base no longer responds at all."

"As long as there's no change in orders, it doesn't matter," Colonel McCloud, the ship's captain, replied in a monotone.

"But, sir," Curtis said, turning his head around.

"What's going on with that awful flu up there? It was getting pretty bad about a month ago. Mountains of bodies, they were saying. There was a huge stir about it."

"Well, the crewmen in Greenland got laid up with it and couldn't come," said communications chief Slim. "I don't even want to think what it would be like to catch it in a narrow little tub like this."

"Ah, crap!" Curtis mumbled softly once he saw that Colonel McCloud had turned his back. "There must be huge crowds out on the streets of Miami right about now, but we've had to stay submerged these past three months."

"Forget Miami," said Slim, his eyes gazing into faraway dreams. "It doesn't hold a candle to skin-diving in Bermuda. There's a world of difference between diving in this tub and diving into the sea yourself. I'm friendly with one of the island girls too. One time we went diving on a moonlit night without wearing a thing. Buck naked."

Curtis swallowed audibly. "You shouldn't talk about that! What if the security officer finds out?" But then Curtis poked Slim in the side slightly. "Tell me everything. Were you both buck naked?"



On the seafloor fifty miles off the coast of Bermuda, the Soviet nuclear submarine *T-232* lay hidden in an ocean trench.

"This is very strange," said the first officer, Major Zoshchenko. "Something isn't right. Inform the captain when he wakes up."

"Shall I send up an antenna buoy once night has fallen?"

"Do so," said Major Zoshchenko. "I'll have a talk with the captain."

CH

4

SUMMER

## 1 Early Summer

. If you could choose just one thing as an emblem to represent humanity and the world, what would it be? The World Exposition? Various scenes from recorded films? A luxury cruiser sailing the seven seas? A map of the world? Or would you choose that tall, glass fortress with the level roof standing by the banks of New York's East River, which served as the headquarters of the United Nations? In front of this building fluttered the particolored flags of over a hundred nations, and in the main assembly room, white-, yellow-, and brown-skinned envoys sat in concentric semicircles of seats. They wore earphones carrying to them in every language simultaneous interpretations of the serious speeches being given there. Or would you choose—

But no.

That would express a far too anthropocentric point of view. Humans always tend to place exaggerated import on things that relate to themselves. Humans are wonderful—yes, *wonderful*—because the only creatures capable of thinking themselves so are humans themselves. Love, ideals, creativity, beauty, a soul that can suffer, battle, God and the Devil, pleasure, civilization...It was as though the universe had always existed just for humans—the setting sun, the snow on the

mountaintops, the green of young leaves on the trees, flowers, spring, the wind, the stars and moon, the wonder of the heavens. The anguish? It is certainly possible for anguish to be transcendental. But can there be any kind of transcendence that does not itself come from humanity? To achieve a more precise symbol for the world and humanity, you'd have to...

I'd like to suggest the image of a small sphere floating unsupported in the darkness of space. A tiny, tiny sphere only 13,400 kilometers across, spinning around and around, tilted 23.5 degrees on its axis of rotation, slowly orbiting a giant, blazing star—or more properly, an insignificant star a mere 1,400,000 kilometers in diameter. *Only* 13,400 kilometers across! Its smallness must be quite surprising. But go take a look at the odometer on any nearby, oft-used automobile. Within the space of a single year, that number will increase by forty or fifty thousand kilometers. Without your even realizing it, that car has already run the length of the earth's diameter more than three times over. Only a few short years is all it will take for your tiny economy car to go all the way around the planet. An ordinary passenger plane can go the distance of the earth's diameter in twenty hours, and a Lockheed SR-71 Blackbird can do it in about four. An artificial satellite needs only three hours and forty minutes, and in the case of light, one twenty-third of a second is sufficient.

It takes about eight minutes and twenty seconds for the light emitted by the sun to reach the earth. To put it differently, light, which travels three hundred thousand meters in one second, takes about sixteen minutes and forty seconds to cross the diameter of Earth's orbit, from the vernal equinox to the autumnal equinox. However, within the five-billion-light-year radius of this universe, there exist giants such as Epsilon Aurigae, where nearly two hours are required just for light to cross the diameter *of the star itself*. Compared to that, the tininess of our little chip off the boulder is startling.

Until the twentieth century, the largest telescope that mankind had ever produced was the two-hundred-inch telescope at Mount Palomar Observatory, and the most distant stars it could capture in long-exposure photographs were two billion light years away. The universe is said to be a sphere that goes on far beyond that, out to a radius of five billion light years. This universe came into being about ten billion years ago. The galaxy that contains our solar system came into existence five or six billion years ago. It was about five billion years ago that the sun first shone. Around the same time, the earth also came into being. Scattered throughout



an expanse of ten billion light years of empty vacuum was a bare handful of galactic clusters—about a hundred sextillion of them—among which about a hundred billion stars were contained in the space occupied by a single galaxy. Among the comparatively smaller of those hundred billion stars was a relatively young orange star, around which a rounded speck of a planet—its diameter just over a scant ten thousand kilometers—orbited. The gravity at its surface was just barely strong enough to cause water to collect in depressions on its surface and to hold on to a gaseous shell a few dozen kilometers thick. It was a smooth, light pebble of a world where the height and the depth of its surface irregularities were only plus or minus eight hundredths of a percent of its total diameter.

Covered in a thin cuticle of silica and oxidized aluminum, this small rocky planet traveled continuously around and around in the gravity-warped space that surrounded its blazing mother-star. In the time it took to circle this star once, it would itself rotate 365 times. In the time since that planet had become locked into an eternal bond with its mother star, it had rotated around that star three billion times or more, and in the thin film of water that covered its rocky sphere, a strange combination of organic compounds had by chance formed at the border between exposed stone and water.

The light and the heat poured down from above, cosmic rays came down like rain, static electricity built up in the atmosphere as a result of convection currents and friction against the surface—these things created compounds of carbon and nitrogen, which dissolved in the water, and sulfur and water adhered to one another. Then those strange organic compounds—through a process of absorbing carbon from their surroundings and repeating a chain of iterative chemical reactions, produced a substance that was exactly the same as itself. In other words, it had started to *reproduce*!

This tiny earth orbited its star billions of times more. During that time, the star continued to burn its own hydrogen and travel along on its endless, recursive journey through the galaxy, dragging a handful of stellar fragments along with it. At the intersections of the air and water and stone that thinly covered the surface of this tiny sphere, through the trillions of repeating chemical reactions of which have already been spoken, through complex and compounded processes, incredibly intricate polymer compounds had formed.

These squirmed all across the surface of the sphere, their soft bodies unchanged in nature from that of early organic compounds. Hard shells of calcium

carbonate drawn from the seawater clung to their slimy bodies. These life-forms were no more than one one-hundred-millionth as thick as that tiny sphere's diameter, which was about the same ratio as that between the sizes of humans and viruses. They multiplied into the hundreds of millions, and by the hundreds of millions crawled across the crust of that sphere.

The little sphere orbited the sun another three hundred million times. Some of the life-forms had by this point come loose from the seafloor, and perhaps according to the commands of some sort of will, had begun to undulate their bodies and swim around in the water. Others had chosen a different path and stuck fast to the rocks. Eight hundred million years earlier, when they had been organic compounds of only a few dozen millimicrons' length with the energy necessary for chemical reactions, one factor, which had been nothing more than the probability of having a chance to absorb light and heat, had over millions of years and through trillions of iterations of reactions and chemical combinations caused something approaching an individual will to begin to take shape. The sizes of the ostracoderms of the Ordovician period are known; their spinal columns were not yet well formed, they had shells on their heads, and were primitive creatures in every respect. Yet even so, they had "eyes" and moved their muscles to *swim* in search of food.

And then this small stone sphere, this earth, revolved around the sun a hundred million times more. In the time since that single dot in the vast expanse of the universe had by coincidence come into being next to one star out of a hundred billion similar stars, it had already revolved around it four billion eight hundred million times or more. And since the time that those first little threads of reproducing organic compounds only a few millimicrons in length—the first life-forms—had appeared, it had revolved eight hundred million times more. But the earth knew neither exhaustion nor ennui, and it continued revolving around and around its blazing mother-star, which had shown no great change in its nearly five billion years of burning.

Now, much larger creatures—far more complex and far more variegated than those earliest life-forms—had at last left the waters and begun walking around on dry land with organs whose functions could only be described as miraculous. The differences from one individual to another also spanned a stunning range of diversity. If one were to have counted out the sum total of all living things, beginning with the germs and viruses that had arisen of old and still retained the lines of their species, the variation and numbers would have climbed to staggering heights.

The largest creature of that time, *diplodocus*, had a body length that was actually one two-hundred-thirty-thousandth the diameter of the sphere on which it walked—thirty meters! The first reproducing organic compounds were probably somewhere between one one-hundred-thirty-trillionth and one one-quadrillion-three-hundred-trillionth of the sphere's diameter—in other words, between a few dozen and a few hundred millimicrons. When you think about it, that means that life-forms had actually swelled up in size three billionfold in *only* eight hundred million years! Already, things were appearing that had even left the ground itself to fly through the sky. As individual changes gave rise to diversity, plant life also increased to the same levels of diversity. One creature type had been eating the same sort of inorganic matter for eight hundred billion years. Others evolved to consume cellulose with the assistance of microorganisms in their digestive systems. Larger creatures ate smaller ones in order of size. And among the smallest organisms of all, some of which had stopped eating inorganic matter, some began eating creatures larger than themselves. *All creatures*. Some of these didn't even eat in the proper sense but instead lived as parasites within more advanced organisms, and some hijacked the entire reproductive mechanisms of their hosts. From the microscopic to the macroscopic, from the simplest organisms to the most complex, the surface of the earth's thin crust overflowed with life. However, such creatures had no great importance so far as the tiny sphere was concerned.

The surface of the small sphere cooled and was heated by various factors, causing it to wrinkle and stretch a little. The continents—those faint, scablike rises in the heavy crust's surface—cracked, were pulled apart, and drifted under the influence of rotational effects. In the wrinkled places, the scabs broke, and relatively warm, miry material came bursting out, and gases escaped as well. Every time this happened, the creatures nearby died.

Seawater flowed into the cracks, the scab shuddered, and on top of its thin skin, the even thinner layer of water that clung to it churned just a little. Whenever this happened, many living creatures drowned. If a drop of water that had formed from cooling steam and fallen from the upper reaches of the atmosphere were given only slightly greater volume, it could shear off a part of that scab, wash away many living creatures, and bury them with landslides. As the earth spun round and round, its four billionth or so revolution was completed. Throughout the soft, thin atmosphere that enveloped the sphere, levels of carbon dioxide and water vapor would increase, then decrease just slightly, and the temperature at

the surface would rise and fall by plus or minus ten degrees Centigrade. Each time this happened, periods of cold or heat came, and terribly large numbers of plants and animals died. And then occasionally a species of some creature would multiply out of control, causing its prey to go extinct, and eventually leading to the predator's own extinction. This dynamic repeated itself hundreds of millions of times.

The sphere revolved another hundred some-odd million times. The temperature at the sphere's surface had fallen just a bit, and here and there parts of it had become covered in ice. Huge numbers of gargantuan, wonderfully developed, and powerful life-forms had died. Over the scant few million revolutions that followed, the ice came three times, and each time this happened, wondrously refined, giant creatures that had come to be during the intervals between these ice ages went extinct. The earth's axis of rotation shifted, and even the North Pole's minor shift from the present location of the South Pacific Ocean to the equatorial zone was enough to end almost all life. Already, only a tiny number of descendants of the creatures of antiquity still remained. When the ice receded for the second time, the scrawny, pathetic, ratlike creatures that had lived on the sidelines of the previous age grew larger, experienced increased brain development, and in some cases even began to stand on two legs. However, that cranial development, when compared against the tusks of the mammoth or the fangs of the saber-toothed tiger, was neither impressive nor particularly strong consolation. Even if they could use some kind of tool to hunt prey with, there was as great a difference between their strength and that of the regal *Tyrannosaurus* of a previous epoch as there was between a snapping turtle and the moon.

The temperature fell again, and again it rose. The earth revolved around the sun another paltry twenty or thirty thousand times. Savage, giant animals died off yet again, and the little ones walking around on two legs survived and began to form groups. Another ten thousand revolutions, and these life-forms had attained a degree of power on the surface of the earth's thin crust. Even so, in terms of both numbers and power, they were as nothing when compared to the other group-oriented animals. However, during the next few thousand revolutions, the bipeds quickly multiplied and began to organize themselves in ways somewhat similar to those of insects such as ants and bees, though not nearly as thoroughly or logically. Just as ants raise aphids, these two-legged mammals began to raise cattle, and just as another kind of ant cultivates mushrooms, they began farming crops.

Groups of allied individuals began to kill and plunder one another. They transmitted imperfect signals from one to the other, but try as they might, they could not succeed in elevating incomplete personal thoughts into a group-oriented way of thinking.

The earth revolved around the sun another several thousand times. By the time a total of five billion revolutions had been completed, these life-forms, which had suddenly begun to increase in number, were scattered—however thinly—across every corner of the globe. Various cultures had taken shape and various races had been exterminated through mutual killing or had died out thanks to disease. Every time the earth experienced a mild tic in its thin skin, they died. After another five thousand rotations since the time that these life-forms first learned to count them, they had also learned to travel all the way around the earth on its watery surface. Afterward, the plunder and group-oriented mutual killings commenced once again. More or less perfect communication between the life-forms on the surface came three or four hundred revolutions afterward. However, the custom of groups killing one another and pillaging—which until several tens of thousands of years prior had been carried out using clubs and stone axes—still persisted to a great degree. Although they had moved from clubs to slightly more advanced tools such as bows and arrows, the killing and the plundering continued on without any change.

Culture? Scarcely ten thousand years had passed since something resembling it first appeared. “Culture” you say, even though in terms of generations, no more than four hundred of them had yet come and gone. Why, just four or five thousand years ago, wasn’t the vast majority of the human race—around ninety percent of it—being terrorized by famine and disease and enemies and natural disasters? Hadn’t they been clothed in rags, ridden with lice, sleeping on the earthen floors of rough shanties, stealing or killing at every chance? Had they not been malnourished, chronically parasite-ridden, living like beasts with the fear of having to find their own food for tomorrow in order to stay alive?

Culture? Hadn’t they just learned about punishment a few hundred years ago? What percentage of the world could read letters? What about the madness of the Crusades? The sacrifices to gods? The slaughter of newborns? The massacre of non-combatants by warring states? The actions of the *conquistadores* toward Central and South America? The slaughter of heretics? The Inquisition? The hunts for African slaves? The Untouchables? The two world wars of just a few decades ago? Weapons

of mass slaughter, the purges, the forced incarcerations, Auschwitz? To what degree had the human race of the twentieth century escaped its inner Neanderthal to have "culture"? What was the fundamental difference between the jaws of *Tyrannosaurus Rex*, the fangs of the saber-toothed tiger, the stinging, symbiotic cnidoblasts of the Portuguese man-of-war, and the modern weapons of today? Was it that they killed in self-defense? That they killed to steal from others? That they killed out of hatred? No, there was no great difference on such points. The human race was still too young to have anything in itself worthy of being called "culture."

Generally speaking, humans did not even have an overarching consciousness of being a single kind or race. Having not even attained the primitive stage of harmonization at which there is an idea of the "individual" and the "whole" existing within the group, they were still up to their necks in the bestial state from which they had only just begun to break free two thousand years before, biting and eating one another, consumed with the raging blood of mass slaughter.

Had they lived for another hundred thousand years, the human race would have likely come to have something in it worthy of being called "culture." One hundred thousand years. Anything less would have been hopelessly insufficient.

However, youth also means infinite possibility. The "culture" of bees is already complete and cannot be altered. The human race, exactly because of its rough and violent incompleteness, had the promise of a brighter future.

If it could only survive...



This tiny, rounded, rocky lump—already wizened with age though its mother-star was still young—had revolved around the sun five billion and several tens of millions of times. Although the fact that organic compounds had arisen and flourished on its surface three billion revolutions ago was a sign that it was somewhat different from its planetary brothers and sisters, did the biomass coating its surface have any meaning for this lonely piece of stone? In the course of three billion years, untold millions of species had arisen and gone down to destruction. But what did it mean to that sphere of twelve thousand and several kilometers' diameter that its crust's thin surface was thinly overrun with squirming microscopic complexes of organic compounds that rose and fell one after another? Starting about three, four thousand revolutions prior, those life-forms

had begun to suddenly increase their numbers. At last, they began to build the shells of collective bodies here and there, rather like coral polyps, and starting several hundred revolutions ago, these collective bodies had together entered a second stage of complexity—the species as a whole began to have something like a secondary group will, similar to that of the societies of migratory birds or insects, though far more feeble. However, the idea that the weak existed to be consumed by the strong was still deeply ingrained in these groups via the notion of natural selection. They were a little different from the life-forms that had come before them. As when the first ostracoderm began to swim in the sea, as when the Mesozoic reptile known as pterodactylus became the first large-scale vertebrate to fly through the air, this life-form was the first to use energy from its environment extracted through non-biological means. Viewed in terms of the evolution of organisms, this was as epoch-making as the first nerve, the first lung respiration, the first four-footed beast, or the first wing. However, that was just a mere hundred thousand years ago.

After the earth had begun to approach five billion and several millions, several hundreds of thousands, several tens of thousands, several thousands, several hundreds and several dozens of revolutions, one more microbe suddenly began replicating with ferocious vitality and began to destroy these life-forms and all their kind. There was nothing unusual at all about this to the five-billion-years-old stone sphere. How many thousands, how many tens of thousands of times—no, how many hundreds of millions of times had things like this already happened? One day, some form of life would suddenly begin to increase its numbers rapidly, and the life-forms it preyed upon would go extinct. The exact opposite would happen sometimes too. Sometimes a completely unrelated life-form would be attacked and die out. On a small scale, this was happening all the time. After the rains, a large amount of nutrient-rich river water flows into the sea, causing a red tide, in which the plankton in the seawater for a time multiply with startling vigor. When this happens, the oxygen in the local sea disappears, the fishes' gills get jammed with plankton, and the fish and shellfish in the area—the same creatures that usually eat plankton—die of asphyxiation. Things like this often happen on a terrestrial scale as well. During the Mesozoic Era, the same thing happened to one genealogical branch of those spectacularly well-developed reptiles. A species of bird here, a species of mammal here—and now this utterly routine occurrence was about to happen again. At a certain point in one of the earth's countless revolutions, it had

begun, and by the time the earth had traveled through barely a third of its orbit, the process was nearly concluded.

## 2. The Second Week of July

"Why aren't you resting in the hospital?" the vice president said, his voice harsh from coughing.

"Why aren't you?" the president replied, his ashen face managing a faint smile. Sitting at the desk in the Oval Office, the president was just barely able to look up at the other man. The clock attached to his desktop calendar told him it was July 15. There were a lot of flies buzzing around the room, and because the cleaning had not been done for quite a long time, dust was everywhere. The flies traced noisy rings around an old fashioned chair near the far wall of the room.

Sitting in that chair was the slouching corpse of an elderly lady with hair the color of iron.

"Wonder if she's starting to smell already?" the president said through his own congestion. "My secretary died sitting there the day before yesterday. There's no air-conditioning, so she'll start to rot right away in this heat. Even if I wanted her taken away, there's no one to do it, and my joints are so swollen I can barely move my legs anymore."

"I've gotten used to the smell," the vice president said, at last walking over to another chair and collapsing down into it. "Washington's a mountain of corpses."

"It's strange, isn't it," said the president, trying to pick up a cigarette with a trembling hand. "We all know there's no way to predict the form one individual's death might take. How many presidents have been assassinated? Regular people should know good and well that usually you can never guess how you'll die. Appendicitis, a traffic accident, falling down a stairwell, food poisoning... But even so, when it comes to the destruction of the human race, we really were lacking in imagination, weren't we? Hydrogen bombs, asteroid impacts. Who would've ever dreamed we'd be annihilated suddenly by the flu."

"This isn't the flu," said the vice president. "It's an unknown pandemic disease."

"Either way, it amounts to the same thing." The president finally turned his head to look out the window. Beyond a stand of trees, a thick column of black smoke was rising into the sky.



"It's burning..." the president said. His vacant eyes gleamed distantly from fever. "Wonder what security's like in the cities?"

"Before a state of panic could set in, everybody died," murmured the vice president. "It was over in no time. Such a shocking thing. Do our administrative responsibilities still mean anything when one hundred fifty million of the one hundred eighty million Americans have died? Security, and all those things...does it just mean telling them to 'die in a calm and orderly fashion'?"

"Responsibility is usually an abstraction," the president said and then fell silent for a time. After quite a long period had elapsed, he finally spoke again, as though letting out a pent-up breath. "If...it weren't that way...it would be neither...significant nor effective."

"Still, though...what about the military's overblown sense of responsibility?" said the vice president. "How about that, eh? The solidarity of the far right critics and the Senate committee members...the saber-rattling generals...they're still kicking. Remember that proposal that came up about two weeks ago, that looked at this awful disease as an opportunity, urging us to take out the Soviet Union and China in one fell swoop?"

"Don't those people have eyes?" murmured the president, leaning his head back against the back of the chair. "It's been only a little bit more than a year since my predecessor, President Silverland, was in office. That insane, anticommunist crusader's influence on the Pentagon can still be felt. They don't understand the human race. They believe the world is divided into two kinds of people: scum of the earth and pure, innocent white people. I don't wish to speak ill of the dead, but thanks to him the history of America—no, of the whole world—has lagged by ten years."

"At this point, neither road would have made much difference," the vice president said. "According to reports one week ago, the combined population of the entire world is estimated to be one fifteenth of what it was a few months ago. We're going to die too, aren't we? I wonder if a single human being is going to survive this."

"Antarctica..." the president said. "Three days ago, I got a message from Conway. Antarctica is closed in by ice, and down there, nobody's gotten sick yet."

A gunshot rang out from somewhere. Yet another suicide, apparently. Hot, brilliant summer sunshine was pouring down on the grove outside. The once common street traffic was gone, as was the sound of people's moaning that had since

replaced it. There was an almost perfect stillness. Amid the dead silence, only the crackle of the distant fires were faintly audible.

"Jones!" the president shouted suddenly. "Are you there?"

"I'm right here."

"I can't see you..." The president slumped forward, and his head struck the desk hard. The vice president staggered to his feet. A cold sweat broke out all over his body, and he felt intense pain in his eyes and throat. The inside of his mouth was dry.

"Ridiculous!" the president said, looking up with his vacant eyes. "We don't even know the name of this thing, and nothing can be done for even the doctors and families who are dying..."

"I'm here."

"Bring me water."

The vice president put out his hand, but only managed to overturn the pitcher. His own breathing was growing more difficult by the moment, and although his heart was becoming as heavy as lead, he was just barely able to keep moving.

"Stay with me, Jones."

"I'm with you."

Suddenly, the president's eyes shot wide open, and he cried out in a shrill voice like a bird's, "I don't want to die!"

"Mr. President..." the vice president finally said.

"No, I didn't mean to say that..." The president's leaden forehead was burning up with fever. As though wringing out the last of his strength of will, he tried to remember what it was he had been about to say. "That's right, there's something I'd forgotten all about."

"It's probably nothing..."

"No. Jones, can you still walk?"

"Somewhat." The vice president closed his eyes, moving his shoulders to help breathe as he answered. "But I'll go right after you."

"Then take the keys out of the hidden safe. You know the combination, right?"

"What keys are you talking about?"

"The ones for ARS." The president's windpipe rattled. "You know them, right? Just start the private power generator and the elevator will work. Go to the basement and destroy the power supply for ARS. I think the switch is off, but..."

"Why do you want me to do that?" murmured the vice president, finally

discerning the president's meaning. "Isn't that like putting a plug in a bathtub on a ship that's already eighty percent of the way to sinking?"

"Just in case...a week ago, General Garland came here with a strongly worded recommendation. With the missile defense system personnel having died in such large numbers, he'd lost his purpose. So he wanted access to the ARS switch."

"That crazy fool!" groaned the vice president. "What kind of a nut is he? He wants to rig dead men with dynamite? Is that it?"

"Garland was saying exactly the same thing," the president said. "On the front during the Korean War, he apparently did rig the bodies of war dead to blow with hand grenades. When someone came to claim the bodies, they'd explode."

"Mr. President!"

"ARS was installed during the Silverland administration. I intended to abolish the system altogether. But the military brass and the politicians who knew the secret opposed this vehemently. So I planned to take my time and do it after comprehensive nuclear disarmament had been achieved. For the time being...just in case...I had the explosive device installed so that they wouldn't be able to use it... I didn't think it would ever happen. But if that switch is thrown, if the unthinkable happens..."

The president's body collapsed forward and then like a spring rebounded backward.

"This is really hard, Jones..." The president made a slight motion as though grasping at his own heart, and then his eyes shot open as if in surprise. "What time is it now?" he mumbled.

The president breathed his last, and for a while afterward the vice president, having fainted, lay unconscious on the carpet beside his desk. At last, he awakened and staggered to his feet. Pulling himself along using the edge of the president's desk and other pieces of furniture, he finally reached the secret safe. It took a long time, but at last he got its door open. He pulled out a small set of keys, but when he turned around, he found himself facing a tall man in a military uniform. A pistol in his trembling hand was pointed right at him.

"Garland..." the vice president—technically the president now—said. "You've just come?"

"I've actually been here for a while," General Garland said, his voice hoarse. His leaden cheeks were speckled with red from the fever, and his eyes flashed brightly, shining with heat and madness. "Give me the keys."

"What are you going to—"

"Fulfill my responsibility as a soldier to defend this nation," said General Garland. Behind him were two more officers, swaying on their feet and feverish. "Listen to me! No one can prove that the other side is in the same mess we are. Those Russians are tough...tough as oxen...They're monsters...If we get hit by a missile attack now, we won't be able to counterstrike..."

"You're out of your mind," said the vice president. "Do you want these delusions you've summoned up out of your own hate and fear to remain even after all of humanity has been destroyed?"

"Don't you understand how ruthless the Russians and the Chinese are?" Garland snapped. "They're sure to attack. If *we're* thinking that this is their chance, they must be thinking the same thing over there. But if we're going to be wiped out, we have to make sure the same thing happens to them."

"Get out of here, Garland!" the vice president shouted shrilly. "You...you're completely out of your mind..."

Garland was just about to pull the trigger. But right before he could, the vice president collapsed, fell to the floor, and died.

Garland hadn't strength enough left to pull the trigger of his .45, and even if he had, the kick would have torn the gun from his hands, and it might well have been he who died from the shock. The general picked up the keys and looked around the room with gleaming eyes.

"Get the private generator started," he ordered his men. "It operates the elevator."

Presently, all the electric lights throughout the White House came on at once, never mind that it was midday. Garland pressed the elevator button. Basement level seven, basement level eight...The elevator stopped at the ninth basement level and the door opened. In the hallway, the bodies of plainclothes security officers lay scattered across the floor. Garland tripped and fell over one of them, and it took him a long time to get back up, open the button-operated door, and totter into the Presidential Special Command Center. In the wide, empty room, no one else was present.

On the wall was a ground-glass map-projection screen that looked just like the one at NORAD's command center in Colorado Springs, though nothing was presently displayed on it. There was communications equipment that could reach the nation's entire defense apparatus, and direct telex and phone hotlines to the

Kremlin. Garland snatched up the telephone and slammed it down against the floor. He had witnessed its installation himself during the previous administration. He proceeded on in the direction of the ARS switch.

It was hidden in the wall behind a couch. The couch was rigged to be pushed out of the way with the strength of a single finger, but Garland's strength was almost completely gone by now.

Garland got down on his stomach and, his breath irregular, started crawling. After a long while, he staggered back up to his feet, his arms flung over the edge of the couch. He no longer had any clear idea of what he was doing. Within his fevered mind, there was only an obsession that had turned into a sort of blind instinct, nurtured by the long, prejudice-filled years of his career as a military leader. This was what had aroused his vigor and led him to that hidden hole in the wall. He opened the compartment and inserted the four keys. Again and again, he got the combination wrong, but finally the last protective lid opened. Garland slid down against the wall to the floor.

His pulse weakened and slowed, and the wheezing in his lungs went silent. Already, the color of death stained his face. It looked like he had died right there. After more than ten minutes had passed, however, his eyes suddenly snapped open, and little by little, his hand stretched out toward the secret compartment. When his fingers could barely touch the red, thoroughly ordinary-looking switch labeled ARS, his heart was seized with a final, black convulsion that sounded like a flutter of wings. When his hand slid down from the wall compartment, it was accompanied by a soft, dry *clack*, and the switch changed from OFF to ON.

### 3. The Fourth Week of July

A humid wind blew through the streets.

Fallen billboards made dry, lonely sounds, and telephone wires raised mournful, whistling wails.

Dark corpses lay fallen all through the streets, half-rotted, swollen, lying in muddy water. Their unbearable stench was blown and dispersed by the wind, flowing thickly from avenue to avenue.

Only now there was no one there to find it unbearable.

Together with the wind, rains began to fall, and from time to time beams of bright sunlight would break through from between the clouds, and steaming

fog would rise up thickly from the silent city. When the rains fell again, the water would wash away a portion of the organic slime of the decomposing corpses and carry it away toward the sea.

In one room in a hospital where bodies lay piled up in the hallways, the patient rooms, the offices, and the kitchen, someone was still alive. Collapsed at a desk, a young man was weeping. He was covered in blood and filth, the lab coat he wore was in tatters, and his beard and mustache had grown wild.

"What's so sad?" asked the woman in red flannel pajamas. She was lying on the floor and looked as one dead.

"I can't stand this," the man barely managed to say. "I can't stand it...I'm a doctor...my business is fighting disease...and I've given it everything I've got. But even so, I couldn't stop people from dying. I thought that the study of human beings was a great thing, and I was proud of the standards of modern medicine. I never dreamed it would all be so useless...that after advancing our knowledge so far, after gaining so many wonderful scientific discoveries, the human race would be dying out from a disease that we don't even know the name or the cause of..."

"It's not your fault."

"But-but I...as a doctor, I just can't take this! As a human being, I can't take this. Science and civilization...couldn't stop the human race from being destroyed by a contagious disease." The man suddenly began weeping in a fierce voice.

"Please don't cry..." The dark, bluish skin of the woman who looked like a corpse was drawn tight, just like that of a dead body. Her eyes were wet and empty from the fever, and they looked up lazily as she whispered, "I'll sing you a song."

As she began to sing, the woman's voice was hoarse, but at the same time surprisingly clear and beautiful.

*Teru teru bouzu doll, teru bouzu*

*Give us clear weather tomorrow...*



Outside the hospital, the rainy season's gray precipitation continued to fall through the humid air. Amid cloying, muggy air where the stench of death floated in the eddies of the breeze, the woman's hoarse, weak singing voice spread out like slender threads of silver. The man in the white coat had collapsed over his desk and already ceased sobbing. He had gone still, and the room was suffused with only

the sound of the woman's voice. It faded out from time to time, and the longer she sang, the more often it happened, but still she kept picking the tune back up again, the sound thin and frail.

*If you've heard my wish for tomorrow*

*Let's drink lots of sweet sake*

The rain fell on and on, seemingly without end.

In the bedroom of a three-room luxury apartment, a woman was at the point of her last breath. She burned with fever, her lips were dark and cracked, and from time to time, violent convulsions ran through her entire body.

Beside a bed that smelled strongly of sweat and fever was a transistor TV-radio that had been left on.

The woman's hollowed eyes were closed and her breathing was uneven. Occasionally, her eyes would snap open suddenly as though she had remembered something, and she would stretch out her dry hands as though in a mad desperation to change the television channel or turn the dial of the radio. But the television's cathode ray tube showed her nothing but ghostly static. The radio as well only offered the susurrus of white noise.

"Say something!" the woman cried hoarsely. "Please! Just say something to me."

The room was hot enough to broil something in. The air conditioning at this six-story upmarket apartment had gone out one week before, at the same time that the water had stopped running. Three days ago, ignoring her high fever, the woman had taken a bucket and gone down to the first floor to draw water. Out in the hallway, the bodies of three men and women had been quietly rotting in the 32-degree heat. The bodies of a French poodle and a Siamese cat were also present, hair falling out, teeth bared. The streets were entirely silent, and now even the rising pillars of black smoke were gone. In the garage, dust had collected on a great many expensive luxury cars, and even in the pool in the apartment's garden there had been three bodies: a twelve- or thirteen-year-old girl wearing a flower-print dress, a silver-haired gentleman in a polo shirt, and a young man in narrow pants. The young man's body looked to have already been dead for some time; his abdomen was swollen and looked like that of a sumo wrestler. His eyes had already fallen out. The woman had hesitated for a long while at the water-side, and at last drawn water from the place farthest from the floating corpses.

The water had stopped running even on the first floor, and there wasn't any other water to be had.

For three days, the woman had been slaking her thirst with that stinking water. By now, however, most of the water in the bucket had evaporated, and she realized that she was near the end.

Although she was tormented in the blistering heat by dreams of being burnt at the stake, the woman still lay in bed drifting in and out of sleep, and lived on. And then there were other times when she dreamed that she was the last person left living in the whole world and jolted awake in terror.

"No!" she screamed in that hoarse, husky voice. "I don't want to die all alone! No!"

Her voice echoed faintly in the empty room. Silence. Then madly, she turned through the television channels again and turned the dial on the radio. Silence.

She clawed at her hair and cried out like a bird. But in reality no voice came out. There was nothing that she could hear. Suddenly, she experienced a hallucination that the telephone beside her pillow had begun ringing, and in her dream state she snatched up the receiver.

It had been nothing more than the song of a wind chime on some distant veranda of one of the other rooms.

Listening to the receiver she had pressed up against her ear, however, the woman was shocked to discover that the telephones in this area were still working. As though dreaming, she began turning the dial at random. Suddenly, she heard a voice. Hardly able to believe it, she shouted into the handset, "Hello! Hello!"

"...southeasterly breeze, cloudy but clearing off later in the day, with scattered showers," a male voice said mechanically. It was a deep voice. A dead voice. "The temperature is likely to rise, exceeding thirty-six degrees at midday. Repeating...The morning of July 6 will be..."

What day was today? The day she had fallen down in the doorway while trying to leave the room. It had definitely been July 3 that day. How many days had passed since then?

"Hello..." she cried in a hoarse voice. "Please answer me...somehow I'm all alone, and I'm about to die..."

"The Kyoto-Hyogo region will be clear and cloudy off and on in the morning..."

A cold shadow, dark as India ink, was seeping into the room from all four corners, drawing closer and closer to the woman, closing in on her, enveloping her.



"Help me!" she screamed. "It's getting dark! It's pitch black!"

Suddenly, she half-remembered a name. It was the name of a man...a man who was far, far away at the very end of the earth. But before she could remember his name clearly, the cold, black mantle came down over her. There was only a nothingness—an intense, all-freezing solitude that lay at the other end of the bottomless blackness. *I'm scared*, she thought...*shizumi*.

And that was the end. Next to her dry, lifeless, bluish, darkened face, the ivory-colored ebonite continued to murmur softly.

"There will also be thunderstorms in the mountains..."

#### 4. The First Week of August

"Hey! Is there anyone there?" It was the voice of a child, still young, and high pitched. It sounded as if it would break down and cry at any moment, yet there was a sense of desperation in it too. "I'm Toby. Umm...I'm in New Mexico...in the mountains a little way from, uh, Santa Fe. Ahoy...Can anybody come and help me? I'm Toby Anderson from Santa Fe...I'm five years old."

"Stop it!"

Yoshizumi squeezed hard on the arm of Tatsuno, who had been about to press the microphone switch. "Radio transmissions are banned right now—we can't transmit from our side."

"It's a child!" Tatsuno shouted. "All alone. He's asking for help! *A five-year-old child is—*"

"What can we do for him?" Yoshizumi asked, turning away. "Talking to that child would be nothing but more pain for us and more pain for him."

"He's only *five years old*!" Tatsuno's body was trembling as though he had contracted malaria. "Can you really let a five-year-old child—a child who's looking for help—die all alone?"

"Ahoy, um...somebody answer..." The faint, tender voice sounded oddly clear coming from the speaker. "This wireless is Daddy's. My daddy says that if anyone uses it but him, they'll be punished by the government. But...since Daddy and Mommy died, I'm calling you, even if maybe I'm not supposed to. Ahoy...somebody help me...aren't you there, Mr. Policeman? Can't somebody come here? It's been three days since I had anything to eat. The refrigerator and the electricity stopped, and the ham is spoiled now. Somebody answer, please."

"Get away from there, Tatsuno." Yoshizumi grabbed Tatsuno's shoulder. "Switch it off."

"No!" Tatsuno stubbornly shook his head as his shoulders trembled and tears ran down his face. "I'm at least going to listen. To the very end of the very end. I'll listen to him, so that I'll never forget what this child says for as long as I live."

"Somebody come, please..." With this, the child at last broke down into tears. "Isn't anyone there?" said the sobbing child in the distant mountains of New Mexico. "Somebody answer me. Somebody...help me. Mommy and Daddy are dead. So are Mr. and Mrs. Bancroft next door, and their dog Liberty. Their horse Atkins fell down and is almost dead..."

"If nobody answers...I'll kill myself."

Yoshizumi held on fast to Tatsuno, who, unable restrain himself any longer, practically lunged for the switch. In the narrow room, the two of them grappled each other for real. A chair was overturned and a bookshelf fell down. Both of the men were now bleeding from the nose and fought with eyes shut from bruises. Their clothing was in tatters, but still they pounded away. Tears streamed down their faces. Even so, both of them continued to fight on meaninglessly as they wept, as though all responsibility for the worldwide tragedy lay in the other. They were filled with anger, caught up in the struggle with a ferocity that seemed almost murderous. When other members of the team heard the commotion and finally pulled them apart, they heard a faint sound from the speaker, which had been silent up till that moment.

*Bang.*

The two of them stood frozen there with their blood-spattered faces and stared at the speaker. But the speaker was only humming softly now, and no further sounds could be heard.

"He was saying the horse was on the point of death," Yoshizumi offered hesitantly. "It must have been the horse..."

Suddenly, Tatsuno threw off the arms that had been restraining him and leapt forward. He drove a vicious uppercut into Yoshizumi's face. Yoshizumi smashed against the table and then slid down onto the floor. Tatsuno sat down on the floor, covered his face, and broke down into tears.

That woeful lamentation, like the thin sound of a flute, faded in and out as it was transmitted through the corridors from dome to dome of icebound Showa Base.

### 5. The Second Week of August

"This is Professor Eugene Smirnoff, instructor for History of Civilization at Helsinki University. I don't think there's anyone left who would still remember me. And even if somebody who does is still alive out there, I don't think that they're listening to this broadcast. However, I have to keep speaking, and this is the day of my regular radio lecture. And this is the last... For a variety of reasons, this will probably be my final lecture. Fortunately, this radio station can still broadcast, thanks to its having its own generator. Certainly, from the look of things here, the people from the station who indulged my last request in making preparations for these broadcasts now seem to all be deceased. The man lying facedown in the mixing room is not moving. I, too, am presently running a forty-degree temperature and am being struck with heart palpitations at regular intervals. I myself do not know how many more minutes I have left to live. However, there is no doubt that my fondest wish as a scholar is to die while giving a lecture, and the fact that that wish seems about to be granted is my greatest joy.

"I wonder if anyone is out there listening to me? No, on second thought, let's not indulge in vain wish-making. Here in Finland, our government collapsed ten days ago, and the citizenry is also lost. The tiny number that are still surviving are no longer the citizens of any nation, but the people of the country of the dead...

"The topic of today's lecture is a simple one. Over the past decade of lecturing in universities all across Europe, I have never once said plainly what I will say today. It was so obvious that it was too obvious—nothing more than a zero, a point of departure, and something that couldn't have been changed no matter what anyone did. And also, it was the destination point in my field: the history of civilization. It was the simple fact that human beings have always been animals. Nothing more than animals.

"To be honest, I no longer really know what I should say. Or perhaps I should say instead that there is nothing left to say. By this point, it is meaningless to make funerary speeches over the sudden end at which humanity has arrived after three and a half million years. It is with heartrending emotion, however, that I find myself unable to refrain from speaking across these airwaves to which no one is listening to a deserted world that has become filled with empty, vacant houses. God is dead already. In the late nineteenth century, we killed Him with our own hands. Spreading out before me there is nothing but darkness and black emptiness—a meaningless *ding an sich*. The consciousness of a destroyed human

is nothing, and the ancient darkness is again falling across this beautiful—but meaningless—astronomical body. Will the earth again give rise someday to highly developed intelligent life? Will it be observed and interpreted by nonhuman consciousnesses someday? How many hundreds of millions of years will it take? Or was the life span of humanity, in the period from its birth to its death, the only chance that this dark and lonely body in the heavens will ever have? Through the loss of the human race, was it just humanity that lost its only chance, or was this also the only chance for this grain of dust drifting across the great sea of the universe?

"You'll have to excuse me—my mind is a little confused from the fever...do forgive me, please. Ah, anyway, my vision seems to be growing blurry. I feel I am no longer able to speak logically. Eventually, probably in the next few minutes, I am going to die, so please, just let me say whatever comes to mind.

"Truly, this is an unspeakable end for humanity. Who in the world of the twentieth century could have ever predicted that the brilliant human race—so full of life, that had been climbing up the last few stairs to a new stage of civilization—would meet with this kind of unexpected, unbelievable demise? It's a completely meaningless end. You could say that it's pure nonsense. There's no dignity about it, no hope. We were not given the slightest forewarning that death itself was at the gates. While humanity was looking up toward the future, it was unexpectedly attacked at its feet. Without even time for bewilderment or panic, we all just suddenly dropped dead. How can such a thing be? How can such a stupid thing as that really be possible? Our destruction is already a *fait accompli*, but whatever you do and however you think about it, isn't this...isn't it just too sad for the human race?

"No, shouting and lamenting over it won't do any good at this point. And yet, just before the end, perhaps the most human thing we can do is to resist, to hold on to hope even in the face of the deep blackness facing mankind.

"But even so, this deep blackness we face...what a hopeless deep blackness it is! And humanity has clung too tightly to human things. Already more than half a century has passed since Nietzsche wrote *Human, All Too Human*. Over half a century has already passed since the syphilitic genius named Friedrich Nietzsche—having adopted the idea that God was dead from the *fin-de-siècle* thinkers, from A.V. de L'Isle-Adam, and from Dostoyevsky's declaration—predicted the *ubermensch* who with groping hands must challenge the fierce void that is itself the rugged material world into which we are born naked, with no one to

help us, all alone in a bare, godless, material universe, with neither help nor rest. Though over half a century has passed, human beings, in their weakness, have held fast to themselves—in other words, we have held fast to human things, standing on the brink of the depths of the void and the *ding an sich*. Ultimately, we lacked the courage to face up to our own true selves—our bare forms noble though petty, everything though nothing, almighty though powerless, filled with all the cruelty of matter and all the infinite kindness of spirit. Human, all too human.

“The love, the bittersweet romance, the seductive, sweat-scented sex, the saccharine humanism, the gossip, the pleasure, the harmless spectacles, the average days of everyday life that come rolling in like peaceful waves filled with gentle exhaustion, the beauty and honor and praise that are entirely domesticated by humanity, that tear rents in reality, never showing us even glimpses of the true terror of the world; the foolish jealousy, the vanity, the foolish quarrels, the ‘face,’ the pleasure, the hostilities of nations, the greed, the exploitation, the hatred, the superstitious racial discrimination, the mutual and groundless senses of superiority and exclusionism between peoples; the ignorance, the distrust, the fear, the self-satisfaction and conceit, the obsession with comfort, the sordid antipathy we feel toward any who excel, the unconditional optimism that comes of excessive faith in civilization—ah! There is much to praise among these human things. Even unto nature, which is fundamentally a meaningless void, we project our own kindness. The deep darkness of good-natured humans, which causes the noble things of humanity to spoil—the affection for a worn-out, grimy lifestyle, the quarrels between husbands and wives, the cronyish, bureaucratic formalism. What foolish things we humans have consumed ourselves with! Overlaying these most trivial of things with our joy and anger and sorrow and pleasure! This is...this is simply pitiable.

“Everyone...right now, I...am crying. I am unable to stop the flow of tears. Humans—the species—should have been able to evolve into something *different*. This deep darkness gradually...gradually, of course...it would have been a pathetically slow walk, but...a little at a time, the signs of learning and of advance were there. At that rate, a grace period—though who would give us a grace period I don’t know—probably a grace period produced by coincidence, by one of the strands of fate that control the universe. If we could have continued for at least a thousand more years at the present rate, humanity, at long last *all* of humanity might have reached some higher level.

“Everyone...everyone who is most likely...no longer here...I am crying for a

species called 'humanity' that carried such a wellspring of untold possibility. And furthermore, as a minor scholar, I am...finally, until the very last instant, suffering from remorse for the fact that I avoided my responsibilities. I...I can't help crying...Those for whom these tears should be offered are probably no longer here. And moreover, again, I am unable to keep from crying. Because, again, it is my responsibility as a scholar.

"My eyes can no longer see...my chest...my heart feels like it is being squeezed...

"But I'm still alive! Everyone, I'm, still alive! Yes, it's a scholar's responsibility! The reason is...at the very least...as intellectuals...we should have known the true nature and the precise meaning of the intelligent life-forms on the third planet of this solar system...of humanity. They knew...I knew...what it was. At this time, there is no justification in saying things such as 'intellectuals are only human too.' That simply means closing our eyes to that which our intellects unavoidably reveal to us. I'm sorry, what I mean is that to go along with the general trends, to shut our mouths...is for an intellectual a failure to perform one's responsibility. It's no different from watching a fire burn and telling no one, or remaining silent as you watch someone drown. Intellectuals have seen this already—Empedoklēs did, Aristotélēs did, Kant did, Newton did, Dostoyevsky did, Nietzsche did, Buddha did, and the Jainists did. If you can just be faithful to your own intellect, unavoidably, you should run into this simple truth: that in facing the material world, the human race—and this is nothing to either wonder or despair at—the human race's intellect is as nothing before the universe. I mean, it's affiliated with a system other than this immense universe. It has been given no seat in any kind of hierarchy within this universe. The fact that it was born from life and by life is sustained, and yet is something other than life...the fact that in the order of the universe, humanity, as a form of life, is ever suspended in midair between an eternal reprieve and the void that appears an instant later—these simple yet self-evident facts...why didn't we appeal to the people again and again regarding the given conditions of the human race? Why didn't we openly hold up these facts—which we have probably only arrived at through fierce opposition, sophistry, ridicule, naive self-deception, and false consolation for humanity—and battle against our deep darkness?

"Everyone! Oh, everyone! It may be in this that the true seeds of catastrophe were planted. Humanity, which developed its science to the degree that it has and

that enriched itself through the production of material goods, has been annihilated in the space of a few months by a mere virus. *This kind of thing can't happen!* It's true. That which should not have been possible has taken place. We did not stand up to face this disaster head-on. Oh, there were a number of scientists who took it seriously and issued warnings, but...this battle was not one that could have been won through the strength of scientists alone. There were a great many societal factors in play. Our statesmen, for example, and the public...the bureaucrats... did they join forces and pour the full force of their strength into it? Did the intellectuals? The white-collar workers? The journalists? Certainly, this was a bolt from the blue that caught us by surprise. Even the scientists were unable to predict it. It came all too suddenly, and humanity had no time to draw unified lines of battle. But still, even so, wasn't it at the same time true that we were *fundamentally* incapable of mustering our full strength for the battle? If the human race had opened its eyes *more quickly* to the situation it was in, had it been committed to cultivating the knowledge needed to evaluate accurately the scale of disasters *as the common property of all mankind*, had some system been put into place by which the entire human race could come to its own defense...might not the battle against this calamity have taken a different turn?

"I do not know from whence this virus originally came. As an outsider to the field of microbiology, I have no way of knowing what mechanism could suddenly give rise to this kind of savage virus. However, the science of humanity—the scientists of humanity—to have climbed to so high an altitude, to have achieved the automatic mass production of consumer goods, to have launched rockets to the stars, to have held discussions about the world's end, to have created fearsome weapons powerful enough to destroy all humanity in one fell swoop—even now, they still haven't fully understood the nature of the virus or found drugs that can stop it. Instead, a few dozen percent of the entire production output of the human race was being poured into weapons dedicated to humanity's love of killing humans.

"Somebody once said that war encourages the development of the sciences—the applied sciences in particular. Sad as it is to say, I cannot deny the contribution that war has made to civilization. War has given us radar, jet airplanes, rockets, computers...it has unleashed the power of the atom. But—can there be any theory as stupid as this? Was it only in the name of war and armaments that humanity was capable of the large-scale manufacturing and investment needed to encourage

the development of such marvelous scientific discoveries? Was it not possible for humanity to have made these wonderful things more quickly and more efficiently without relying on the Grim Reaper's sponsorship? That which with God's blessing fights to prevent death is made sinister and evil. The radar used to maintain air traffic safety is also a device for detecting enemies. Powerful rockets that should be used to explore the universe become missiles that deliver death itself. The computers that have revolutionized every aspect of civilization are used for 'operations.' Chemistry produces gunpowder and poison gas. Lasers are used to aim the sniper's rifle. And finally, the atomic power that promises boundless energy to humanity... is born into the world as a doomsday weapon.

"Could these wonderful inventions have never been created without first going down the road of armaments and warfare? Was it acceptable that we scholars accepted this as fate—as 'civilization's capitalism—the unavoidable state of the utilitarian stage,' and simply cast our hopes on the future?

"To tell the truth, on this point both Einstein and Fermi, who were driven from Nazi Germany and fled to the United States where they recommended the Manhattan Project, and Von Braun and Heisenberg, who stayed with the Nazis, are worthy of denunciation. These men—actually, it wasn't only these men—all scientists bore a certain moral responsibility for the wars and the international politics of the second half of the twentieth century. But these men didn't have the insight to choose their sponsors wisely. Also, they thought that their research had an intrinsic value that had nothing to do with who was paying for it. Or perhaps they were overconfident in their own political skills and thought they would be able to manipulate their sponsors for the sake of their research. Actually, there were more pressing circumstances that forced unavoidable decisions upon them. When I think of the skill of the Nazis in leading Heisenberg's brilliant pupils and acquiring the heavy water factories in Norway and Rjukan, you could say it's obvious that 'for the victory of freedom, peace, and democracy,' the Allied scientists had no other choice than to recommend the construction of the atom bomb. And yet, their moral responsibility remains. Or rather...from that point forward, it is proper that we intellectuals as a group, we scholars as a collective, be called upon to make an accounting of our historic responsibility.

"Yes, it is there that the historic responsibility of all intellectuals emerges. We absolutely cannot foist all the responsibility back onto the scientists. No, from that point on it was the responsibility of the philosophers who, compared to the



glorious scientists, remained hidden in the background of this century and unable to accomplish anything remarkable. Einstein had his limits as a human being. Whether or not you call them ‘the limitations of the petit bourgeois’—for there was not a single flaw in his genius as a scientist—he was, however, from beginning to end a consistent Machist who to the very last never believed in Heisenberg’s theory of uncertainty. And in this, there is a subtle correspondence to his limits as a human being. Just like Newton’s limitations were subtly delineated by his emotional side as a devout Christian...

“No genius is omnipotent. The Renaissance concept of the *Homo Universalis* was nothing more than self-confidence laced with the worship of vitality. And as for the concept of the whole, it needs to be rethought in terms of all of mankind, and of all intellects. Individual intellects are themselves not universal, but should be thought of as complementing one another. By forsaking the notion of the almighty genius, the idea is not to break down scholarship into ever-smaller specialties, nor is it simply to bring about the loss of the genius’s prestige. Rather, intellectuals and the scholars must revive a dialogue that transcends their areas of specialization and fully cooperate with one another. And then once more, by way of a Cartesian trust in intelligence—the ability to understand—there would have at least been something to link the intellectuals and the masses together again.

“Einstein did not specialize in politics. Although his epistemological side went deep into metaphysical territory, he was neither a scholar of philosophy. And who can blame him on that account? Rather, it was the philosophers who should have aided him most—not dismissing his enormous discovery as a nigh-incomprehensible event that had occurred in a different field of study in a laboratory far away from the university, but readily acknowledging it as an event in the history of civilization, translating its human meaning into their own systems, and drawing generalizations about it.

“Every person is a fragment of a continent...truly, on the continent of intellect, all events are bound together by a common destiny. The philosophers should have known that, and in their position been bearing the responsibilities that they should keep revising regularly. Just as Einstein worked with a mathematician in order to generalize his theory of relativity and by introducing the concept of Riemann space was able to complete it for the first time, couldn’t his discovery, his theory’s meaning for civilization, have been made all the more universal by working with a philosopher? And at the same time, couldn’t the philosopher, unafraid

of stepping out of his area of specialization, have attained a more universal understanding by actively incorporating that discovery into the foundation of a new worldview? And not only that...wouldn't it have been possible to change the fundamental meaning of the world, of humanity—of the world that lurks in the depths of the collective subconscious of all humanity? Of humanity's self-image? And in so doing, might we not have led the history of the twentieth century...of civilization...into a fundamentally new dimension? A new...view of the univer—

"Please forgive me...how long...was I unconscious, I wonder? It's obvious, isn't it...that a new view of the universe...would usher in a new morality. The Aristotelian...the Platonic view of humanity and the world...morality...was learned from the science of those times and was completely inseparable from that era's view of the universe. This kind of thing goes without saying now. Ptolemaios's astronomy and medieval theology...that 'rose on the ceiling' and the order of the highest heaven...they are inseparable from one another. So when the twentieth century made such astonishing progress in the natural sciences, what new way of looking at humanity, what new way of looking at the world, what kind of new morality should we have received from Einstein and Hubble's model of the universe?

"I...this is my own opinion, but...I believe that we in the latter half of the twentieth century must take up again the view of the universe—and of mankind—of Immanuel Kant, a genius who without putting on the grandiose airs of a prophet arrived at a most futuristic conclusion, believing only in Reason. He was a singular giant standing between the end of the modern age and the beginning of a new era.

"Two great geniuses: Hegel, a critic of Kant, and Marx, who was a critic of Hegel...As Karl Löwith so aptly pointed out, it was because they were unable to eliminate the dregs of salvation theory—including a vulgarized form of Christian eschatology—from their epistemological systems that they were ironically connected to the 'medieval,' while it is their predecessor Kant, oddly enough, who is connected to the modern, and to the future. Even Heidegger, that towering giant of our age...despite the high esteem he should certainly be held in thanks to his tremendous, painstaking work in ontology and the proposition of existentialism...it is as Vauvenargues said: in the vastness of its Gothic minuteness, the simplicity of Kant's thesis holds powerfully fast to the things of all humanity.

"I...what was I trying to say just now?...I had better...hurry and state my

conclusion...My voice is...can you still hear me? I can no longer feel my hands or feet. It's dark, it's black as midnight...

"To state...my conclusion, the intellectuals of the twentieth century, and above all the philosophers...should have cooperated with the scientists...to keep the scientists from becoming the slaves of authority, of capital, and to make it possible for them to serve only Reason, which should have been their lord and master from the start...also, if they had appealed directly to the masses, to the authorities, seeking to convince them and to expose them—telling the truth about the facts that are indicated by undeniable scientific knowledge, propounding the truth again and again, appealing to the *meaning* of those facts over and over—and if all the impeachers and the judges of the contradictions and roots of evil in the mechanisms of the establishment, and all the peacemakers between opposing forces had been able to perform their functions...maybe history could have been even stranger than it was. The intellectuals...if they had had unshakable conviction...It certainly would have not been impossible...

"Perhaps that was rather a task for the future. If there had just been something powerful enough to penetrate the human core of the brutal forces that give organized opposition to the convictions of the intellectuals—the soldiers and the mercenary capitalists—then maybe something could have been done. No, in order to do that, it would have required winning the release of the partial restrictions on the freedom of thought and speech in the dictatorships that were emerging in the Communist Bloc countries, and on the other hand the sublation of capitalism's contradictions and the roots of its evils. If *something* could have soaked into the ruling class itself, and in so doing convinced the majority of capitalism's fierce imperialist elements to put an end to their aggression, it might have been possible to achieve change...

"The chance for the intellectuals to gain such power was there in the blind promotion of education throughout the world. Greatly enlarging the numbers of the educated would have made it possible for the majority of the human race to leap from their status as mere employees of modern industry to that of the rational humanity of tomorrow, and this would have given us the possibility of overcoming both capitalism and the force that directly opposed it—namely, dictator-driven, militaristic socialism—at the same time. Because military fanatics and monopolistic capitalists deluded into thinking they are emperors are in the minority...

"Yet even so...the ones who foresaw that possibility, who moved to try to

make it a reality...or rather, proceeding from the factual knowledge that thermo-nuclear war means the extinction of mankind, and were forced irresistibly into a global mindset...were not intellectuals, but outstanding individuals...realistic politicians. In our generation, they forced us to take a step forward, and after many twists and turns and dangers, should have been someday able to achieve this. But even so, the intellectuals were silent.

"Now, with everything...having been destroyed all at once in a short period... what can come of talking about such things? And yet—after all I...what a shame. From the bottom of my heart, it's just such a shame. The intellectuals, and above all the philosophers, they were in a position to understand the shape of mankind and the universe that was being put forward by the natural scientists. They should have been able to communicate these discoveries—translate them for all of humanity, to interpret for the masses the meaning of those things for human beings. Then if they had been able to use that understanding to get the whole world to synthetically *transcend the modern world*...

"But the fact was that we, the human race—and within the human race, the intellectuals who should be the specialists when it comes to utilizing their intelligence—during the period in which they existed, were unable to bring an end to the conflicts between nations, to the slaughter, to the exploitation, to the inequality, and to the poverty and tragedy. Come to think of it, this summer...that's right...I just remembered. Everyone, if all had gone well, it would have been this week—the second week of August—that America, Great Britain, and the Soviet Union would have signed the Comprehensive Treaty for the Abolition of Nuclear Weapons...but it's too late now...even for that.

"I...it's such a pity, everyone...it's just such a pity that we were unable to achieve that goal while we yet lived. We could not unify the world or even the inner consciousness of the human race. We simply folded our arms and just waited for the whole world to get sick of its increasing production, its overlong battles, its mass casualties...for it to naturally turn, in accordance with one mathematically probable destiny, so to speak, toward that necessary knowledge. Were we optimists who believed in historical inevitability—which no one has been able to prove exists—or had we taken up Henri Bergson as a shield, to let the dregs carry time as we waited in expectation of a latter-day Utopia without working to hasten its coming?...I see, it was because Bergson said that understanding is something that requires the passage of time; he likened it to waiting for sugar to dissolve.

However, everyone...we should have started stirring that sugar sooner! The earlier the better. If we had done that then humanity could have already put away the age of exploitation and war, and on the whole, humanity's psychological, intellectual, and material production power might have turned back to become something more effective, and more essentially human. If this human consciousness, which exists as a group of intelligent life-forms that sprang up by chance on a tiny lone island in this bottomless material universe, had been universalized sooner...then we humans, by more quickly attaining a consciousness of ourselves as a single race of beings, could have stopped acting from the impulses that come out of the darkness...the energy used for our mutual slaughters, for derision and hatred, could have been put into the battle for the true humanity—the battle against poverty and hunger and darkness and disease, and also into the battle for wisdom...and maybe we could have done something. Again, maybe this could have been our one-in-a-million chance against this great calamity, this unexpected end.

"In other words, only in the time of Armageddon is there but one road by which all humanity might avoid destruction, our ultimate chance in the face of this disaster...it may have been in the 'reason and good sense' which we should have worked more quickly and more forcefully to make a global standard.

"In a moment...inevitably...this final lecture must draw to a close, but...I must confess that I am being tormented by an embarrassing thought. Add to that my record as a scholar—my mortification at the human race dying out in such circumstances—and I can't bear not to confess to one more embarrassment as well. These things...which in my everyday life as a scholar I had vague thoughts about...now at the end of the world...I feel like questioning them directly for the very first time.

"Up until three months ago, I too was completely caught up in the lifestyle of the vulgar world...that insignificant daily routine. This radio lecture...I started doing it in order to have my yacht repaired, so this autumn I could go on a trip in the Mediterranean with my wife again. I had intended to speak a number of times on the history of civilization, starting in the ancient Near East and going forward to the present age. I started this in a very slapdash manner, because I didn't think many people would be listening anyway.

"Never did I dream that the final lecture would take the form that it has. On the brink of the end of humanity, with mountains of the corpses of our countrymen stacked up before our very eyes, and indeed even as I am about to die as well...

It is with feelings of deepest regret that because of my lack of courage...for the first time...I feel like talking about what I should. In the depths of my shame, I couldn't even raise my head up to look at you all if you were here. I was lacking... as a scholar, in the conviction and courage to take up my responsibility toward all humanity at every opportunity, and to remain unmoved at those times when scornful laughter would have come down upon me.

"I pretended to be everyone's friend and abandoned my responsibilities, only performing my duties in a perfunctory manner. In addition to my regrets for the whole human race...on top of my mourning, I have no choice but to add my own entirely personal dishonor and regret...I must die in the torment of feelings of disgrace and humiliation. What can I call this repulsive death, so filled with dreary suffering? Three months ago—back in the midst of that eternal stay of execution—when I had a pleasant home, a new Italian sports car, a beautiful wife, and a promising future...when I received my due respect, when I was filled with that pleasant, self-satisfied feeling that I was just a little bit smarter than everyone else—who would have imagined that I would have to die tainted by such shame? However, this death, stained as it is with a double portion of embarrassment, is surely my punishment for being from the beginning cowardly and weak willed, both as a scholar and as an intellectual...

"My lecture...is finished."



### Summer's End

As signs of the coming autumn began to appear in the mornings and evenings of the northern hemisphere, the electromagnetic signals emitted by the five continents were all disappearing one after another. It was August 29 when a small station in Novosibirsk, the last to continue transmissions, stopped.

Half a year earlier the five continents had been filled with all manner of noise, but this was the instant when perfect silence returned. Only half a year earlier, a startling commotion had filled the space between the ground and the ionosphere two hundred miles above—all manner of electromagnetic waves—long, medium, short, and VHF; the transmissions they carried: telegrams, telegraphs, international wireless telephone communications, radio and television broadcast signals, command signals for artificial satellites and experimental missiles; lasers for the

observation of heavenly bodies; maser waves; the passenger planes, private planes, company planes, military planes, and patrol planes that traveled back and forth daily along flight paths that were bound together like netting; the rockets that were being launched somewhere every day; the countless uncrewed satellites flying back and forth far, far above them; the electromagnetic waves on which were borne the chatter and breathless emergency notifications of how many hundreds of millions of the world's people, the countless multitudes who boarded airplanes and flew back and forth from one point to another.

And down on the surface—the people of the cities who constructed buildings that scraped against the sky, the smoke belched from giant factories, the exhaust fumes and the noise given off by all manner of vehicles, the water vapor and carbon dioxide exhaled by the animal life, the roar of the cities, the harsh sound of a power hammer driving in nails, and away in the distance, the reverberating explosions of atom bombs and TNT...Viewed from the perspective of the planet itself, perhaps these things were nothing more than faint whispers. The temperature of the atmosphere surrounding the earth had not been noticeably raised even by all of the many and varied noises that human beings had made. Even so, however, the clamor of 3.5 billion people had been the noisiest it had been since the beginning of the world. And now, the earth had returned to the silence that had existed before the arrival of the human race. Or more properly, to the same silence that had existed several tens of thousands of years ago.



The sun had a slightly more yellowish tinge to it than it had had a month ago, but even so, it still retained some vestige of its cruel midsummer heat, burning hot on a beach where there was now no sign of life. It was the end of August, but the beach was as desolate as at midwinter. The shops that had put up screens of woven reeds against the sun, as well as the wooden buildings in the free rest areas, remained closed. From the electric wires that had been put up last June in preparation for summertime festivals, dark light bulb sockets and broken lanterns were swinging back and forth in the wind.

The ocean had begun to churn with the summer swells sent each year by typhoons in the south, but there were no swimmers anywhere to be seen. On the horizon of the distant southern sea, the signs of a ferocious typhoon were clearly

visible, but there was no longer anyone to observe or to become excited or unhappy about it. On the backs of the white-capped waves that rumbled and roared as they came crashing in to shore, there occasionally floated dark, spongy things that resembled rotten tatami mats. After many waves had licked the shore with their foamy tongues, these things would be washed up onto the wet sand, and then go rolling backward with the receding of the wave. Most of these things were swollen bodies.

In the shadows of the pine forest that ran along the beach, and even atop the burning sand, dark, ruined masses lay here and there. From some of them, white things were sticking out exposed, glinting in the sun. Countless greenbottle flies—too many to do anything about—were dancing madly above those masses, covering them, their hairy abdomens flashing like metal in the sunlight. Their eggs hatched quickly, and fat maggots covered the dark masses so thickly as to make them appear variegated in color. The maggots squirmed wetly atop one another, making it almost appear as if the dead bodies still lived. They fell from the edges and then came crawling back—and not just for the organs or the meat. Already they were crawling through vacant eye sockets and ear holes and into the craniums. In what time remained before the blazing summer days dried the moisture from the bodies, the flies pushed and shoved against one another, dreamily gorging themselves as though trying to increase their numbers as much as was possible in the time that was given them. What leftover parts they were incapable of chewing into were already being broken down by bacteria.

Across the world, similar feasts were being held for the flies and the proteolytic bacteria. Not only the humans, but also the dogs and the cats and a portion of the birds were being offered up in these silent Bacchanalia. The fires in the cities were already burning themselves out by this point, but the fires that had spread from the cities and towns to the surrounding countryside continued to blaze on, ferocious and unquenchable. The brush fires on the great plain of central Africa had burned away numerous jungles and traversed several degrees of latitude, and still they burned on. The forest fires in Canada and the Rocky Mountains had also been burning for more than a month. In the oil-producing regions of the Middle East, thousands of kilometers of desert had become a sea of fire, and because of the scorching heat, the fire was still spreading.

A number of people who lived in mountains and forests far removed from any towns were still surviving at this time. A village of Alaskan Eskimos, a village of



Indios in the Andes mountains where outsiders were very unwelcome, a branch of the Jivaro tribe in the backwaters of the Amazon, a small band of central Africans who lived by hunting, a tiny group of Himalayan monks engaged in spiritual disciplines. Even so, did all of them together amount to even a few thousand? Although these groups cared little for things outside of their own territories, belated coincidence would eventually bring them into contact with the virus, and that would be the end of them as well.



At the end of summer that year, “humanity” breathed its last—all save the fewer than ten thousand who remained locked away in the snow and ice and bitter cold of “the last continent.”

The winds blew gently over the world’s great landmasses, the clouds took on various shapes as they drifted past, and the rains moistened the land just as they always had. The sun in the northern hemisphere was tinged with a gentle straw color, just as it was every year when the first signs of autumn began creeping in.

Near the deserted cities, countless insects raised their voices at dawn and at dusk, though the only ones to listen were the bleached bones piled high in cities bathed in moonlight, where lights no longer shone.

The freshened Earth that year differed not in the slightest from that of any other year, and as it moved ever nearer to the point of the equinox, it almost seemed to be pretending not to know about the little tragedy that had played out on its surface, as it walked with a surefooted, albeit somewhat geriatric gait around the sun, spinning round and round as it went.

During the middle of September, two of the US Navy’s nuclear submarines and one Soviet nuclear submarine made radio contact with the South Pole. Each one was beneath the waters of a different sea—the Atlantic Ocean, the Pacific Ocean, and the Arctic Ocean. The “Supreme Council of Antarctica,” in the name of its chairman, questioned the submarine captains in great detail and issued instructions that were to be followed to the letter. The council had learned that these submarines were free of infection, and so they ordered them to proceed south to Antarctica and stand by off the Palmer Peninsula. Under no circumstances whatsoever were they to surface anywhere along the way. However, as the submarines were drawing near to the Palmer Peninsula, a crewman aboard the American

submarine *Sea Serpent*, which was doing periodic patrol duty from the rearmost position, fell ill.

The Supreme Council quietly issued orders to the remaining two ships to sink *Sea Serpent*, and in the waters of the South Shetland Sea, *Nereid* and *T-232* acquired the target and destroyed it in a surprise attack. Colonel McCloud, however, the captain of *Nereid*, insisted that *Sea Serpent* had, in reality, chosen its fate when it made its report.



### Intermezzo

It took some time for “Antarctica” to get up and running in its new direction.

The arrival of the first summer after the Great Calamity had been Antarctica’s greatest source of apprehension, but it was passing in safety, at least for the time being.

Everyone was on high alert for the arrival of aquatic mammals from the disease-ravaged northern hemisphere—the whales and the seals that might bring the contagion back with them when they returned from their long migrations—yet for whatever reason, these species almost never carried the disease. This fact gave the people new hope that Antarctica might continue to survive. The research teams of the various nations had stores of foodstuffs that would last from one and a half to two years, but even so it was self-evident that eventually they would have to turn to hunting whales, seals, and penguins.

At first, though, it was only with the most meticulous of precautions that people went anywhere near these animals. Fortunately, at the last moment before humanity’s extinction, information about the disease had been provided by amateur ham radio operator WA5PS in North America, and the doctors and scientists of Antarctica had gained a considerably detailed understanding of the fearsome contagion.

WA5PS—the savior of Antarctica, as it were—had used a tape recorder to broadcast the information that had protected Antarctica even after his own death. He had been a medical researcher named A. Linskey and had worked in an army hospital after being mustered from the Sloan-Kettering Institute. While working in the psychiatric ward, he had by chance been told by a patient there the true cause of the Great Calamity. He then contacted scientists in the institute’s virus research

group who were working under military secrecy and gathered all the information from them that he could. By that time, the institute had fallen into chaos, and he had been able to use its facilities to the full. Shortly before his own death, Linskey managed to pin down the bizarre nature of the contagion almost fully. By the time he had identified it, though, the tragedy that had overtaken all of humanity had already been drawing to its conclusion, and he himself was lying on his deathbed. Still, Linskey had his ham operator's license, and even though he had no idea whether his information would be useful to anyone or not—even though he was just hoping that maybe there was still some region surviving out there and that it would be of use to the people living there—he had begun broadcasting a repeating loop of his information at the whole world, and then he had died.

A. Linskey—an unknown researcher in his forties. Not a single person at the South Pole knew what kind of man he had been, what his face looked like, or what he had been like personally. Even so, his name would be remembered forever afterward among the people of Antarctica. He was the man who, at the moment of his death, had held out hope that his knowledge would be of use in the world to come, even though he was moments from death himself.

When under the greatest of precautions, the abominable MM-88 was isolated for the first time in Antarctica from the body of a dead horse that had been carried into waters off the South Shetland Islands, the Supreme Council named the bizarre contagion *Linskey bacteriovirus* in his honor. The bacteria that served as the host of the virus or, more accurately, of “the reproducing infectious nucleic acids” were called “WA5PS”—the call sign of Linskey's amateur wireless channel.

As for foodstuffs, thankfully, it looked like the problems would somehow be solvable. Although it was plain to see that the supply of vegetables would run out sooner or later, the various nations totaled up what they had saved in storage cellars under the ice and found that there was enough to maintain a minimum standard of health for about four years. There was also quite a lot of medicinal-use vitamin C, and the NASA personnel at the American station had a small-scale cultivation tank for chlorella. Growing this into a large-scale operation presented no great difficulty.

In addition, the Japanese team's biological research division, using heat from a hot spring that had been discovered near their forward base on the Prince Harald Coast, had built a small greenhouse and were growing plants there with only a battery-powered sunlamp and the natural light of Antarctica. They cultivated

many vegetables, and because they had many kinds of seeds, it looked like they would be able to replenish a portion of the vegetables once the scale of the operation was increased. In addition, they were also giving serious thought to making use of the seaweed and plankton of the Antarctic Circle.

The next problem was that of electric power. Though the amount of nuclear power being generated differed from country to country, it was estimated that power generation would hold out for four to five years on average for each nation, based on the number of uranium fuel rods they held in reserve. However, now that there would be no more supply ships arriving from their homelands each summer, it was clear that the nuclear power would need to be rationed out for as long as possible. Because they were working at the very ends of the earth, all of the reactors had been built to make refueling a relatively easy operation that could be carried out by remote control. However, the spent fuel rods constituted exceedingly dangerous masses of radioactive material, and there were no devices for processing them for reuse.

The same problem applied to the two nuclear submarines that had aligned themselves with Antarctica. It was fortunate that the nuclear submarines, which were now Antarctica's only means of reaching the outside world, had both just had their fuel rods changed out, but even so, some years down the line, they would need refueling. *T-232* was impossible to refuel without special facilities, and only *Nereid* was equipped with both reserve fuel rods and a remote-control fuel-changing device. Even so, once those hundred twenty-plus rods of ninety-two percent enriched uranium had burned down to the point where they were no longer of use, no more would be coming. In Antarctica, there were no facilities for cooling these extremely dangerous fuel rods, for chemically treating them to remove the fission byproducts—the “ashes of death” produced by nuclear fission—or for reshaping the uranium once more. Naturally, it was not feasible to build a gigantic, remote-controlled factory. The shield of the ancient continent of Antarctica was rich in pitchblende that had a uranium content of over forty percent, but the large pieces of equipment needed to refine it to a high degree of purity, enrich it, and shape it into fuel rods were nowhere to be had.

One other issue was more pressing than even nuclear energy. Antarctica was dependent on fossil fuels—petroleum products such as heavy oil, light oil, and gasoline—to power a great number of dynamos, heaters, ground vehicles, and aircraft. Nuclear power generators were limited to the stations of only a few nations,

and if the other stations ran out of fuel stocks, they would have to be abandoned altogether. And naturally, the long-term future of Antarctica depended on how well they could survive using indigenous resources.

As for coal, an outcropping of anthracite had already been discovered in the inner part of the continent. It was, however, buried under several hundred meters of ice. Even so, the Soviet Union was beginning trial digs in a part of this area. As for oil, a very promising oil field had been discovered in Adélie Land, where France's Dumont d'Urville Station was located. The Supreme Council of Antarctica had for the present made its most important policy objective the full-on development of these Port Martin oil fields, and it asked each nation to contribute excavation equipment, pipes, pipe-laying equipment, and other machinery to the project. As for oil, it would be relatively easy to put together facilities for refining crude oil. A Clinton universal burner was redesigned to use crude for its heat source. Amid harsh conditions such as ice, snow, bitter cold, blizzards, and a tight work schedule, there were a number of casualties, but the Terre Adélie Oil Refinery was finally completed. It was a strange-looking, terribly makeshift sort of factory—a low structure built with the strong polar winds and the bitter cold in mind, located in a basin in the ice field and using many rows of fractionating towers. It was the summer of the following year when it produced its first gasoline.

In order to live in Antarctica, however, a number of other conditions also had to be met. What about machinery and communication devices? What about clothing? And shelter? In the harsh climate of Antarctica, these things wore out much faster than they had elsewhere. In minus-eighty-degree cold, metal parts used for long periods of time lost a great deal of their tensile nature. Plastics underwent devitrification, their clear surfaces becoming clouded and brittle. Power generators wore out, communications equipment—at least the equipment that didn't use those nigh-eternal transistors—broke, and replacement parts would not be available.

Antarctica was the frontier of that generation—a vast continent that consumed much, but had itself not yet produced anything, supported by all the fruits of the entire world's technology. All of the things necessary for survival had been brought over from another world, then simply consumed. Large quantities of supplies, machines, and materials had been brought over and consumed in bulk.

For what purpose?

If in the past you had asked them that question, the people of Antarctica might have blushed just slightly—or perhaps gone the other way and turned defensive.

They would have answered in such a way because of the hundreds of times they had already been forced to answer that mean-spirited question in order to secure funding—funding from the miserly world—funding that never returned a profit in the short term.

"We're doing this for science," they would say. "To expand the scope of human knowledge."

In some countries, what might have been considered a rather strange logic had swayed the minds of the VIPs and business leaders: "The whole world is doing this. It's *embarrassing* for a first-rate industrialized nation like ours not to be involved. Even if we're just going along with the others, it's something we should be doing."

And then from time to time, the researchers had had to employ deceit in order to make Antarctica sound important and promising, vaguely hinting at its "rich natural resources" and "strategic military value"—though in reality there was no chance whatsoever of either of these things being successfully exploited. However, along with outer space, the twentieth century's "final frontier" was Antarctica, and the true meaning of that was gradually being revealed more and more.

Antarctica had a single, abstract kind of value.

It had no utilitarian value whatsoever, but it was exactly for that reason that it laid bare the perfectly opposing constructs of "material production" and "spirit," showing them for what they were, and pointing toward a day when man could stop living for bread alone. In other words, Antarctica was a presence that hinted at the kinds of goals human beings would live for in the world of tomorrow, when bread would be as common as stones.

No one had been able to foresee, however, the unexpected role that had by unfortunate coincidence overtaken the continent of Antarctica.

*We're doing this for the survival of the human race...*



And so Antarctica, much like many another frontier before it, became a curious blend of harsh, primitive subsistence and the highly sophisticated things of civilization that its people had brought with them from the world they had left behind. But the gap between these two aspects—between harsh primitivism and high refinement—was greater here than on any other frontier. It would not be

possible to close that gap—or to repair the cycle of reproduction—within ten years or even twenty.

Antarctica held rich natural resources, but aside from a scant supply of mechanical repair tools, the people living there lacked the productive capacity for making anything—least of all industrial products. Their complete lack of facilities for mining and refining metal was the last nail in the coffin. From this point forward, how much farther would they have to slide down the slope of decreased reproduction and encroaching poverty? In their present circumstances, what kind of outlook could be forecast for “production”?

From this point forward, how many years would they have to spend living cooped up in their stations? When would the day come that they could return to those northern lands, with verdant plains and the smiling sun? When could they go back to those pleasant continents steeped in the sun’s glory, in which a single day included both daylight and night? How long would the rest of the earth continue to be overrun with these microbes of death? Or would these last remnants of humanity, now exiles in this land, have to live like this forever?

Antarctica continued on for a time out of inertia. During that period, Admiral Conway, formerly of Navy Operations, sought the assistance of both the officers under his direct command and the scholars of the various countries and had the groups hammer out two types of plans. The first was a plan for what they should do in the event that ten thousand people ended up trapped in Antarctica forever. The second was a plan for survival in the event that it became possible to return to their homelands after the passage of several years. The various national teams were asked to make exhaustive lists of whatever resources they had at their disposal and to describe their outlook for developing and exploiting Antarctica’s various resources. After two months of work, when the plans put together by these two groups had been completed, they became the basis for operationalizing the possibilities in both cases into variables, expressing methods of resource distribution as mathematical functions, and turning the plans into sliding scale benchmarks that could be adjusted in accordance with actual conditions. Each of the figures that were elements of these plans were small, and McMurdo Station’s computer was used to the fullest, so extremely precise calculations were possible. Based on these calculations, twenty-six basic plan patterns were made. They immediately switched from the plan already under way to another plan, deciding upon the most advantageous course of action.

Admiral Conway had many years of practical experience and was possessed of a superior talent as a project manager—exceeding even his abilities as a soldier. He understood the suggestion of Professor Borodinov—the man in the highest position of authority for the Soviets—and aside from shepherding along their precise, detailed plan in its broad outline, he made it a point to generally refrain from consulting it except in emergencies, leaving the handling of most situations to dialogue between the various nations' wintering teams, their proposals and suggestions, and their own discretion.

"Surviving in Antarctica," said Admiral Conway, "will only be possible with the creativity and ingenuity of the ten thousand people here, backed by their effort and their eagerness to survive and thrive."



The human problem arose only much later. The people who had been sent to Antarctica had all been chosen from the best and brightest of their respective nations. All of them were possessed of astonishing perseverance, tenacity, endurance, grace in the face of crisis, physical strength, adaptability to difficult environments, social acuity, and on top of that, high levels of intelligence and accomplishment. They were all people who could calmly handle a life in which six months of the year must be spent cooped up in night and snow—even if it continued for two or three years.

However, as it gradually began to sink in that they couldn't go back...and that even if they could go back, they *would not see any of their loved ones*—a certain degenerate emotion began to creep in.

Its first appearance—though it certainly didn't affect all of them—was among the journalists who had been dispatched to Antarctica on assignment. In general, they had planned to spend one year there to get a "peek" at life in Antarctica. The busy, lively world to which these people truly belonged was that of the roar of rotary presses, flashbulbs, ringing telephones, and voices shouting "Extra! Extra!"—where broadcast waves and gossip and information roared across the globe. As reporters on mountaineering and on the polar region itself, whether they liked this extreme lifestyle themselves was beside the point—their essential nature was that of the traveler roving from one end of the globe to the other. The journalist



lifestyle was comprised of periods of rest cheered by reminiscences of prior journeys, followed by a move on to the next journey, impelled by the invitation of the unknown. Such people were from the outset not suited to a life of confinement and not knowing whether that isolation would ever end. They had come to Antarctica to be the eyes and ears of the world, but they were eyes and ears for the gently clamorous “mind” of the world that had now been lost.

At the beginning of their sudden, coincidental stranding, the press pool had oddly seemed to become all the more vigorous. The writers grew desperate to learn about the worldwide pandemic and had labored on in fruitless efforts to somehow communicate with the world’s survivors.

There had also been one who had stowed away on a nuclear submarine and attempted to *escape*. After this, as most of them were adjusting to the basic lifestyle of Antarctica, one of them had...

In the space of three years, eighteen of the Antarcticans went mad, and three committed suicide. The suicides included two young reporters and one cook. Out of a population of ten thousand, this was a surprisingly small number.



One other plan that the Supreme Council initiated in the second year had to do with their *descendants*.

Among the personnel at the American, British, Soviet, and Norwegian stations were sixteen women, who were the only women in all of Antarctica. And perhaps, probably, these sixteen women were the last human females alive. Looking ahead, even if it became possible to return to temperate zones someday, *these women* were the last chance for the continued existence of the human race. Most of these sixteen women were not all that young—somewhat problematically, the youngest of them was twenty-six and quite a beauty—but all were still of childbearing age.

This problem had an extremely delicate aspect, in that it affected the sex lives of ten thousand men, and there was no way to proceed except to gradually, cautiously reason with one another. Colonel McCloud and others knew very well that as long as there were no suggestions of sex as a possibility, there was little danger that the men would become violent as a result of deprivation. However, considering the fact that each individual has their own levels of prejudices regarding sex, and

further considering the gender gap of nearly ten thousand to sixteen, the situation clearly called for discretion.

As far as this problem went, the opinion of project headquarters was split right down the middle. One side said that the nature of the problem should be spelled out clearly to all Antarcticans, all the women be isolated, and that “volunteers” be sent to the “harem” in an orderly fashion. Furthermore, to assist with the problem, all countries should pool their “dutch wives”—the extremely elaborate ones and the partial ones alike—to be considered the common property of all. The council would also officially tolerate homosexuality, without going so far as to encourage it.

“I am flatly opposed to that!” said Colonel McCloud. “If we did that, the chaos would actually get worse. We wouldn’t just be dealing with acts of lust; we’d be having murders!”

The other opinion was that this problem should be handled as quietly as possible. They argued that a secret committee should be formed, and that the supervision of the women and arrangements for their impregnation be placed under its jurisdiction. Using hidden monitors, the committee would maintain surveillance of the collective Antarctic sexual stress, so that at any time *under cover of secrecy*, they could have that stress “relieved.”

Admiral Conway, however, was the Special Supreme Commander for the Antarctic Circle. This was not because he was an American but was the result of his election from among the members of the Multinational Council of Leaders. Yet again, he adopted a proposal from Professor Borodinov, who was the eldest among Antarctica’s survivors, allying himself with neither faction, but instead choosing a third option.

He explained the situation to everyone, women included. Then he appealed to them, saying that this was not a mere problem of instinct, but an extremely serious problem for every Antarctic—*a problem of maintaining the species*. The admiral already knew very well that when it came down to it, the best way was to bet on everyone’s reason. He believed that the only way to prevent scandalous incidents was to rely on everyone keeping an eye on one another, being considerate of one another, reinforcing social norms, and following the democratic rules of their groups. The women would continue to work alongside everyone else just as they had up till now. However, from this point forward, they were to be respected all the more and viewed from a standpoint of guardianship—not just as women but as the mothers

of the future. Broadly speaking, the methods and the selection of those involved in impregnation would be left up to a select committee organized by doctors. However, those who had tried their utmost to contain themselves but felt it a losing battle were told they should quietly come forward. Based on a thorough inquiry, and in particular *on the feelings of the women who were asked*, such requests would be considered.

"All right, everyone, from this point forward," the admiral said with great seriousness into the microphone, "when you see a woman, you are not to whistle at her or secretly ask her for a date. Women are to be called either 'Mom' or 'Mother.' If you think of her as your mother, you shouldn't get any funny ideas."

Everyone was smirking.

"Question, Admiral!" said a thickly accented voice from Australia Station. "Can we not request a partner in an orderly, impartial way? It's ten thousand to sixteen. Our turn would come round once every two years."

"That's disrespectful of the women," the admiral replied. "There are some among the women who have said they would be willing to accept such an arrangement, but from the standpoint of selective impregnation, I want those who can control themselves to do so insofar as they are able."

"What are we supposed to do if nothing works and we just *can't* control ourselves? Put in applications to have ourselves straitjacketed?"

Suddenly, the admiral smirked. "If it reaches that point," he said, pausing just slightly, and then bellowing out in a voice loud enough to be heard all over Antarctica, "*then just go jerk off or something!*"

Stations all across Antarctica exploded into laughter.



In this manner, Antarctica gradually adjusted to its new course. There were regional and national groups, and it would take a much longer time for these to gradually merge into a cohesive whole, but even so, little by little, through joint work projects, they were now moving in that direction. Now that they had lost their homelands, they were no longer the people of this or that country. All of them were Antarcticans, the earth's only human society.

The short summer ended, the sun went round and round, sinking halfway

to the horizon, and at last another winter and another summer came. Each time summer came again, Antarctic ice lit by the sun slipped and fell off into the sea, becoming icebergs that drifted away northward. The pack ice also grew loose, and the penguins and the seals returned. At the start of summer, people closely watched the ice that was carried away to the northern sea, and at the end of summer they watched the animals returning to the warmer north. From the dark, cold world of ice, to the distant north.

It was in the autumn of the third year that the first baby was born in Antarctica. It was a chubby baby boy. Men all across Antarctica wore such happy expressions that it looked like someone had been tickling them, and some of the tension was leaving their cheeks. All ten thousand of them felt as if they had become a father for the first time. Among them were those who also pulled out photographs of their own small children who had died along with everyone else two years earlier, staring at them intently, sometimes turning aside toward the walls to sob voicelessly. On the day the child was christened, everyone in Antarctica rested from their labors. Admiral Conway, who had been asked to be the child's godfather, fidgeted so much that twice he upended the dish of holy water, and when he hesitantly touched the child's cheeks, his stern expression cracked into a helpless smile.

The boy, named after the Antarctic region itself, was called Antonio.

This child was a new light of hope for his ten thousand fathers. At every opportunity, the men used the pretense of various errands to visit McMurdo base where the hospital was. Even those without any business there hung around outside as close as they could get, getting shooed away, waiting in long lines, and then finally getting a glimpse of little Antonio's face.

"What a fine boy!" was the typical sentiment. "Look! He's a really good boy! He looks really strong, and he's handsome on top of that!"

"That's the truth!" was the usual excessively articulated response. "You could put Antonio in any baby pageant in the world, and he'd absolutely be in the top class! He'd bring home the gold medal for sure! I guarantee it!"

Then they would turn toward his mother sitting beside him, blink their eyes as if looking into a bright light, and then speak to her in almost reverential voices. "Mother, please take good care of yourself. Please eat plenty so you can feed him plenty. Don't let Antonio catch cold..."

Most of the things they said were set phrases.

The child was growing up strong and healthy, and at last other mothers began to have children as well. Among these, a baby girl was born, named Pola after the Polar region. Each time there was news of a new birth, all work in Antarctica would stop. This was one thing that even the Supreme Council could do nothing about. When the submarines were away at sea, nearly all communications with them—aside from those about their mission—were about children. The children were all given “Antarctica” as their last names: Antonio Antarctica, Pola Antarctica, Ivan Antarctica, George Antarctica, Thor Antarctica, and Yoshiko Antarctica.

As a pattern settled into place wherein the uproars over children turned into uproars of festival, life in Antarctica was also beginning gradually to be absorbed into steady rhythms. Among the people, scenes of loud weeping and crying out in anguish had already disappeared for the most part. Instead, to the same degree that worries over private matters and feelings of resignation had sunk to the bottom of the everyday, things such as hope and despair had turned into quiet things: intense but helpless homesickness that occasionally ached in the bottoms of their hearts and irreconcilable grief for the dead world had been carved into the hearts of each and every one.

Starting around this time, visible shortages became apparent. The things made by a number of temporary, small-scale production facilities were plain and homely, and produced in quantities far too small to cover the shortages. People silently moved from one level of primitive living to another. Instead of electric lights, they began using candles made from the fat of seals and penguins. A number of smaller stations were abandoned, and their former occupants began living like Eskimos in igloos. Rather than using guns, it became popular to hunt using hand-made harpoons and lances.

The determination and preparation to live like this for the long term—pitiful life though it was—was seeping into all of Antarctica. However, the eyes of the people blazed with a burning, bittersweet hope as they gazed out toward the fog-covered horizon of the northern sea.

*Someday...*

But every year, reports from the two nuclear submarines that went out into the seven seas to conduct research came back with the same answer: “No.” The air near the continents was still polluted with the bizarre cocci and their spores.

Every cubic centimeter of it.



Four years passed. People by this time hardly raised any kind of fuss anymore, not even over the birth of a new child. That unimaginable tragedy and the harsh, long years gradually hardened the hearts of the Antarcicans. The short summer of the fourth year passed and autumn arrived. *Nereid* and *T-232* returned to port with heavy footfalls and no good news.

And then...

PART TWO:  
RESURRECTION DAY

C  
H

1

THE SECOND DEATH

*“And death and hell were cast into the lake of fire. This is the second death.”*

The Book of Revelation 20:14

1 **Report ST3006**

. The only things moving in this world were the swiftly flowing, undulating stripes of light and shadow. With a force like that of exhaust plumes being expelled from jet engines, something resembling white smoke flared up above a rough land covered in thick, frozen snow, and then dispersed.

In the midst of a blizzard with wind speeds of thirty meters per second, Yoshizumi was standing with his back toward the wind.

It was, of course, impossible for him to stand facing the wind. He was wearing his typical polar gear, snow goggles, and mask. His feet were planted in the frozen snow, and he leaned back against the wind that blew against him. Grainy snow blew between the outer shell and inner layers of his gear from every unprotected angle, and in no time his fingertips had started to stiffen. Even so, Yoshizumi continued to stand there, paying it no mind. Though appropriately dressed, the cold air seeped into his bones. When he looked up into the dark sky, whirlpools of black grains were blowing past like windswept ashes. Suddenly, his eyes lost focus and the scene became blurry.

“Yoshi!”

Under the roar of the wind, he could hear someone crying out his name. It was

the voice of Steve Hathaway, from McMurdo Station's central computer room. Were the results of the computations completed then?

"Idiot...in this blizzard..." Steve's hand gripped his shoulder firmly. When he turned around, crackling sounds came from arms frozen stiff as rods.

Yoshizumi didn't answer.

Steve shouted something at him, but the wind was drowning it out and Yoshizumi couldn't catch the words. He suddenly felt his shoulders being grabbed and pushed. Steve had gotten behind him and started pushing. When the two of them joined their efforts, they were at last able to resist the wind and make it to the station's buildings. Just now, Yoshizumi had thought himself no farther than ten or so meters away from them, but at some point he had ended up getting separated from them by more than twenty meters. He had been pushed by the wind.

When they opened the building's double door and went inside, Yoshizumi took off his shell coat and rubbed his cheeks and his fingertips against each other. Both were numb from the cold, but at last sensation returned.

"What did you think you were doing out there?" Steve said, as he rubbed his own cheeks. "I was afraid you were trying to commit suicide."

Yoshizumi remained silent as he busily massaged the stiffness out of his fingers. The heat inside the building was melting tears that had frozen in his eyelashes, and now they were running down his cheeks.

"Is standing out in the middle of a blizzard how Japanese express their sadness?" said Steve in a gently teasing tone of voice. "I heard that *Nereid* had stopped in Japan. Are you wishing it hadn't?"

Not answering, Yoshizumi pulled his coat off and hung it from a steam pipe. Melted snow formed drops that dripped from the pipe.

"How about the computation cards?" Yoshizumi asked as he walked down the corridor leading to the data processing center.

"They're finished," said Steve with a nod. "Oh, and after that, they said they want you to report when the final results become available."

"If you're talking about the Geology Committee, I've submitted interim reports, but—"

"No, not them. The Administrative Committee."

"The Administrative Committee?" Yoshizumi suddenly stopped in place. "What interest does anyone on AdCom have in changes in the earth's crust? And changes that are so far north of here."



"Good question," Steve said with a shrug of his shoulders. "Pull your results together quickly, though. I don't know the reason, but the bigwigs struck me as being terribly interested in your report. I got a phone call just a little while ago wanting to know where you'd gone."



What Steve had told him was true. The data processing center was humming with the sounds of many microcomputers when Yoshizumi went inside, and on top of the small desk he was borrowing were mountains of just-completed computation cards, as well as a large number of memos affixed to them with pins.

*Y: AdCom called. Return call ASAP, RE: report ST-3006, which you filed at Geology Committee at General Observation Headquarters.*

*Yoshizumi: Some big shots from the Supreme Council were looking for you. They want you to explain your report to the council in person.*  
—Slim...

*To His Excellency Yoshizumi: Admiral Conway called for you in person!*

The last memo read,

*Inform the Office of the Administrative Council of the time at which results will be fully processed. You are to attend a special session of the Supreme Council. Be prepared to give detailed explanations relevant to geological report ST-3006, submitted by you to the committee members.*  
—Office of the Administrative Council.

Yoshizumi tilted his head and pulled the telephone over toward himself. Stuck between the phone and the receiver was a strip torn from a piece of computational paper on which another note was written in a messy scrawl. *Call AdCom Office!!!*

Yoshizumi picked up the receiver. The operator transferred him to the office the instant he heard Yoshizumi's voice.

"Yoshizumi?" said a voice with a dry-sounding Russian accent. "This is Popov. You've kept me waiting. Where have you been?"

"To get a breath of air outside," Yoshizumi said. "What's going on?"

"I hear you're busy processing all kinds of data," Popov said. "When can you have those calculations or whatever finished?"

"The cards are already prepared. I'll start my analyses now, and those results will be compiled into a general report."

"You can't explain it as-is?"

"A specialist could follow it now, but...if I add in two, three supplementary factors, it will become much more easy to understand."

"In that case, I'd like you to do so. There are some scientists on the Supreme Council, but there are also soldiers and other people outside of your specialty as well, so I'd like you to explain it so it can be well understood."

"May I ask why?" said Yoshizumi. "What is it about that report?"

"Why? I don't rightly know," said Popov. "Anyway, I'm just telling you what they want you to do. How long will it take?"

"You mean the general report?"

"No, you don't have to go overboard with that. Just tell me when you'll have what you need to explain the results in broad strokes."

"Well, let's see." Yoshizumi looked down at the cards, where pompous strings of numerals written in magnetic ink were arranged, and thought about it for a moment. "If I can have five hours, that would work."

"Can you not speed it up any?" said Popov. "At this very moment, VIPs are gathered here from stations all over Antarctica. There are some who'll go back to their own stations as soon as the blizzard lets up."

"If I could use two computers," Yoshizumi said as he glanced around the data processing center. "But right now only one is available."

"If you had two, how long would it take?"

"Two and a half to three hours."

"Get me the chief of the data processing center."

Yoshizumi signaled to the chief of the center, who was just walking past at that moment. He was a former Navy Operations technical officer, tall and slender.

"Oh no you don't, Popov!" he shouted after listening to the receiver for a moment. "What about the guys who're doing arithmetic operations now? I can't tell them to stop in the middle."

"There's a guy who's getting ready to have his data processed," called Steve from the side.

The chief of the processing center clucked his tongue to inform Steve that his input was not welcome.

"Well then, stop prep on number four." So saying, the chief of data processing returned the receiver to Yoshizumi. "Number two and number four. Will that be enough?"

"In addition," said Yoshizumi, the wheels in his head clearly turning, "is the multiple integrator for making weather charts free?"

The chief briefly stood on his tiptoes, stretching to get a look at the large machine in the corner of the room. "Nobody's using it right now. Can you handle it by yourself?"

"If someone could help me..."

"Steve!" shouted the chief. "Give us a hand over here! The office says to give him all the assistance we can manage."

It took several minutes for Steve to feed the mountains of stacked cards into the card classifier. It was hard work—those that had been through the first stage of classification were placed in their various groups, and then reclassified according to a different classification scheme. When the third stage of classification was complete, the cards' data would be recorded onto magnetic tape, following a system that Yoshizumi had written out by hand. Yoshizumi ran two computer programs. One portion of the calculations streaming out of computer number two were fed linearly into computer number four, and the rest were calculated independently, with three circuits set to go into the multiple integrator.

The Phillips-WE-produced integrator was an extremely precise machine made for creating weather charts. Molecular circuits that had been burned in using photochemistry could do the same work as transistors, even though they occupied tens of thousands of times less volume. The US Navy Atmospheric Observation Department had specially ordered them for use in Antarctica, so their power consumption was low, and their stability at low temperatures was first-rate. The part that did most of the mathematical operations was in a room dug deep outside of this data processing center, buried under several dozen meters of ice, connected to the machinery in the data processing center by cable.

Yoshizumi selected from among a stock of negative plates a seldom-used map of the whole North American continent and an enlarged map of Alaska and burned them onto oversized sheets of photosensitive paper. Afterward, he printed

out typographs of isobars, isotherms, and wind directions, and set up the three-dimensional scanner.

Steve breathed a relieved sigh as an OK sign was sent to him from the other side of the room. Yoshizumi glanced at the clock. Already, one hour and twenty minutes had elapsed.

It took another half hour to perform general checks on all the settings. When everything was in place, Yoshizumi turned back toward Steve. Steve threw the switch. An extra-wide tape of one and one-third inches' width started to roll, and the lamps on three computers started blinking wildly. Several minutes later, the scanner began making clicking noises.

## **2. "We don't deserve this"**

### **1800 hours**

The Supreme Council members gathered in the operations room. Representatives were present from each of the national bases. Also present were Colonel McCloud, Major Zoshchenko, Professor Visconti—head of the Geology Committee—Yoshizumi's direct supervisor Professor Yamauchi, two American Air Force Officers whom he only knew by face, two NASA employees, and finally two men he had never seen before. One appeared to be an American; the other was most likely Russian.

Aside from a large, crude table, ops was devoid of decoration. The ceiling was low. In the front was a screen for projecting maps, several telephones and interphones, one videophone, a microphone and small mixer table for live broadcasting, and above the screen, the new mark of the "Antarctic Federation." This resembled the mark of the United Nations, with the continent of Antarctica in the center, and concentric rings and rays representing lines of latitude and longitude. On both sides of it, small flags of the former nations were arranged.

"Mr. Yoshizumi," the still-youthfully complected Admiral Conway said suddenly, not making any opening comments to start the meeting. "It was by lucky coincidence that we learned of the content in report ST-3006, in which you compiled, summarized, and submitted to the Geology Committee the results of surveys conducted in your field when you participated in *Nereid's* recent survey mission to the northern hemisphere. We are very concerned about the deductions that you put forth. We sought the opinions of Professor Visconti and Professor Yamauchi of the Geology Committee, and both of them replied that because you, in your field, are

an extremely competent and creative thinker, your analyses have a generally high level of reliability and can be trusted. Because of that, due to associations your conclusions have with an exceptionally dangerous situation, the Supreme Council has summoned you here today because we would like to hear a more precise explanation in your own words."

Yoshizumi, not knowing what their intentions were, was feeling somewhat irritable. They were speaking with discretion. It sounded like something was going to happen, and it had something to do with the observations he had made. They were wanting to confirm the connections. An 'exceptionally dangerous situation'? What on earth were they talking about? Antarctica was so remote from the continents. Truly, his research had concerned a region that was practically Antarctica's antipode. No matter how he looked at it, he didn't think there was any connection at all.

"Please explain it to us," Professor Borodinov interjected. "Simply, and in an easy-to-understand fashion."

"Well, first," said Yoshizumi, beginning to explain in a slightly annoyed tone, still unsure how to explain in a way that would meet their requirements, "as you all know, my specialty is seismology."

Simultaneously, everyone's face grew tense at that. Yoshizumi went to the screen and hung up one of the maps he had only just finished making in the data processing center.

"I say seismology, but my main area of research concerns the study of dynamic crustal structures, not observing landscapes or predicting events. In particular, before I came to Antarctica, the main thrust of my work was in using statistical physics to study phenomena within the earth's crust, and in the course of trying out various things, by chance, I introduced a certain functional correlation between several different phenomena and discovered a method that can be used to predict earthquakes with a very high degree of accuracy. Just before I came to Antarctica four years ago, I submitted a paper to a conference on seismology in Japan. However, before it could generate much criticism or debate, *that* happened, as you all well know. Afterward, however, after making statistical corrections to data from the tremors on the Palmer Peninsula and Graham Land in Antarctica—as well as to Professor Visconti's observations of earthquakes in the waters off Chile when he was on *T-232* two years ago—I think it has become possible now to predict a coming earthquake's location, time, magnitude, and depth of epicenter with a very high degree of probability and with considerable specificity."

The eyes of the committee members were fixed on the two maps. Above the blue relief map, red spiral lines had been embossed.

"We took readings this time of the Pacific coast of the North American continent—well, of the sea bed along the coast, actually, since land-based observations were impossible. What we observed, more than anything we'd observed in the past, were large scale, mutually associated unusual phenomena." Yoshizumi pointed at the map. "To get these areas that look like isobars, I posited a relationship between variations in the gravitational field and variations in the inclination of the earth's magnetic field and vertical arc minutes, then integrated over three dimensions. Sparing the detailed explanation, I obtained a numerical value which I call 'E' in this manner, and then connected all the points where 'E' is the same to one another. The shaded areas indicate the dynamic pressures deep within the earth's crust. These come from taking what we learn analytically from the value of E, inputting the mass of the continent along with other factors, and making corrections."

Yoshizumi moved from the map of North America to the map of Alaska.

"The unusual phenomena observed this time mostly took place in the Pacific coastal region of North America. I think this is proof that the land-building activity in this general region is once again becoming stronger and stronger. In particular, there were extremely high values observed in phenomena in the seafloor off the coast of Alaska. In other words, there were powerful perturbations in the magnetic field and in geoelectric currents, and in the space of just a few months, there were large, *negative changes in the gravity* that our instruments were able to record clearly—there are deficits in mass."

Yoshizumi turned slightly to look back at the committee members. All of them were sitting still as stones.

"Uhm...by observing the coastal region, we predicted that abrupt, positive gravitational anomalies were taking place in the direction of the continent, most likely with correspondingly large, positive gravitational shifts on the dry land. Backing this up, many volcanoes in the Alaska Range were observed to be becoming very active. Mount McKinley for starters, and some previously dormant volcanoes as well. You're probably aware of this already, but belts of positively abnormal gravitation caused by convection currents in the magma often match up extremely well with belts of volcanic activity."

Yoshizumi stopped speaking to look around the room. Did the expression-

less—but extremely tense—faces looking back understand what he was saying, or were they just waiting for what was coming? It was hard to tell for sure.

"Alaska is in the Pacific 'ring of fire'—also known as the circum-Pacific earthquake belt," Yoshizumi continued. "Now, it's true that this is an area with frequent earthquakes, but what we're seeing here is simply bizarre. Observable, abnormally intense changes have taken place in an extremely brief period of time—I'm not talking about the two years since Professor Visconti's observations; this is just in the few *months* between *Nereid's* coming and going. The seafloor off Alaska is presently sinking steadily, and small-scale tectonic-line earthquakes happen there frequently. Now according to Wegener and others, the large fold of the North American coastline was caused by the continental landmass on top of the sima moving west and colliding with very old Pacific sima, which was hardened by cooling. This causes wrinkling due to pressures created by this movement. Now the missing gravity on the seafloor along the coast of North America has never been as striking as, say, the missing mass of the trench that runs along the outer edge of the Sumatra-Java tectonic line. However, in this short space of time, a plus-and-minus anomaly bearing a strong resemblance to that of Sumatra-Java—with an exceedingly narrow width and the shape of a parallel belt—is gradually becoming apparent.

"This made me wonder if unusually abrupt convection currents might be occurring in the magma of the lower regions of the continental landmass and suspect that subsidence bifurcation might have appeared all along the coastal seafloor. You may be aware of this already, but geothermal heat underground causes very slow, opposing currents of heavy, super-alkaloid magma—typically, it flows about one centimeter per year. Because the sinking magma can be replenished from the lighter layer of sial, mass deficits occur, the gravity becomes slightly weaker, and oceanic trenches and geosynclines form as a result. The rising magma comes flowing up from the other direction to cause positive gravitational anomalies. The sinking part is the cause of trenches and geosynclines where we find the foci of earthquakes, and in the rising part the creation of mountain ranges along folds in the earth's crust can be seen."

"And because of that," inserted the Norwegian representative Bjornsen, "it looks like there are going to be some earthquakes."

"In all likelihood," agreed Yoshizumi. "Given abnormalities as striking as what we've observed, it's not just me; anyone could predict that major shifts in the earth's crust are on the way."

"I wonder why this abnormal convection current has happened so suddenly," said Blanchot, the Belgian representative.

"To be perfectly honest, I have no idea," said Yoshizumi, shaking his head. "I don't think this is related to the Great Anchorage Earthquake of 1964, though it may be the last of the string of earthquakes in Alaska that's continued since '64. At any rate, something very odd is going on in the ground beneath America, and beneath the Alaskan region in particular. Should it be called an extremely abrupt peirogenic effect...? The Mohorovičić discontinuity has steadily risen and has come up to a depth of just a few kilometers. Even a hundred kilometers down, in the region of isostatic equilibrium, there seem to be some awfully big waves. Why such rapid changes are happening—changes that seem to have ignored almost everything we know about magma convection—I can't really say. After all, everything we know is only a scratch in the earth's crust. When it comes to the internal factors of major epeirogeny, coming up with analogies is about the best we can do."

The people who were present experienced for one instant a feeling as if the floor had floated free of the ground beneath it.

Drifting, floating continents—bobbing like icebergs on a sea of heavy sima; light chunks of sial slowly flowing along with the force of the earth's rotation. As unshaken as the land, as unmoving as the mountains. Humans had always thought of the land as the firmest, heaviest thing in the world. But in fact, the land was floating like foam on a sea of magma, the continents were drifting like corn flakes in milk. They were only flowing along with the current. The ocean of magma, affected by the nature of the ocean itself, experienced convection currents, swirling tidal flows, and the crashing of waves. Continents floated on the waves as though they were leaves. At times, they became wrinkled like the film on warm milk; at other times, they broke apart, more brittle than dried leaves.

Human beings were living on top of those fragile, drifting dry leaves. In the brief moments of the wandering of the continents, they had formed colonies, like a mold that had germinated on the surface of a dry leaf and then overgrown it. That leaf's length and breadth had at last become bound by the mold's hyphae, and tall towers of spores had been constructed. They sang the praises of civilization, they hated and warred again and again, and in each and every moment had pride in their power and wisdom and glory.

Mold!

Now, as when sunlight dries out a mold and kills it, they had been wiped from



that crust of land, with only a small handful still clinging on at the water margin of ice and snow, living on under cruel circumstances. Yet in the end, if they were something that had germinated on the top of something that drifted, what could they do if their boat of land were about to be shipwrecked?

"But you *can* predict the size, location, and approximate time of an earthquake, can't you?" said Barnes, the English representative.

"With a high degree of certainty," Yoshizumi said with a nod. "Of course, I can't say one hundred percent. Still..." He shrugged.

"Mr. Yoshizumi, your method for predicting earthquakes through the analysis of a series of anomalies in the earth's crust is tremendously valuable," Professor Visconti croaked hoarsely, turning to address the other members. "If the world had continued as it once was, his hypothesis would have surely had an enormous impact on the academic community. It may have even won the Nobel Prize."

Yoshizumi grimaced at that. The Nobel Prize—the prize, the glory, and the idiotic frenzy of journalists. When he thought about the destruction of that world that had been so in love with merrymaking, he had to wonder, what had the idea of glory ever really meant in the first place?

"We've also been discussing the report in terms of numbers," Professor Yamachi said. "His conclusions seem mostly accurate. The methods used for making the observations are also, I believe, sufficiently reliable."

"So what about the earthquake?" said Admiral Conway. "Where about will it occur?"

Yoshizumi extended a finger and pointed at the map of Alaska. Then he drew two lines with his finger and pointed at their intersection. "Right around this point here," he said. "An earthquake should occur within a hundred click radius of here."

"On land?"

"Yes." Yoshizumi nodded. "Normally, it would occur along the area where negative gravimetric changes are being caused by the trench. In this case, however, it appears most likely that an epeirogenic earthquake deep underground will serve as the trigger for a large-scale tectonic-line earthquake, so the conditions will be a bit different."

"Which means," Admiral Conway said, "that *two* earthquakes will overlap, correct?"

"Well, yes. I'd say that's true. One earthquake will have its focus over a hundred kilometers underground, on a region of isostatic equilibrium. The other, I

think, will occur in the middle depths at a depth of between twenty and thirty kilometers."

"What about the size and the time?"

"I have only a rough idea of the mass of Alaska's landmass, so this isn't precise, but for magnitude, I'd say between eight point six and nine. And for the time, probably two or three months from now. A year at the very most."

"Magnitude eight point six to nine?" muttered one of the air force officers in surprise. "That would be the biggest earthquake ever observed in history!"

"It would be. Up until now, the Chilean Earthquake is the only one on record to exceed an eight. The Great Kanto Earthquake was a seven point nine."

"I wonder what the damage will be like..." murmured Admiral Conway.

"The buildings on the surface—including the most sturdy ones—will be mostly destroyed. Most of the underground structures too," Yoshizumi said. "I say that there's never been an earthquake this big before, but the history of earthquake observations is still quite a short one. When it comes to shifts in the earth's crust, the one or two thousand years that humans have been making records is barely an instant. Even the legendary earthquakes said to have sent continents like Atlantis and Mu to the bottom of the sea in almost no time can't be entirely ruled out as impossible."

Continents torn apart, the sea swallowing up the fragments of shredded land, mountains melting like wax. Something seemed achingly humorous to Yoshizumi as he looked at the faces of the council members facing him. They had gone pale, and the tension was such that it almost looked like their faces had just turned into masks.

*Damage to buildings on the surface?*

But the only things that would be crumbling and falling over were empty, uninhabited shells—graveyard cities. There would be no one trembling in fear, no hell on earth for the women and children, no roaring shouts of men protecting their families from disaster; instead, the sudden rumbling of the land would come upon silent, uninhabited cities and towns. The buildings would fall in an instant, and the cities would be reduced to mountains of rubble. Whether it happened gradually or suddenly, vacant buildings left in the state of their former use would eventually return to the dust someday. In time, not a trace would be left of the homes of those two-legged life-forms. This was the second death that would befall slain humanity.

Oh, the irony!

Yoshizumi had been born and raised in a land of earthquakes, and having witnessed them in Fukui and Niigata prefectures, had devoted his life to the study of predicting them. Earnestly, he had risen to the challenge of the last type of natural disaster that humans had been unable to predict, hoping to reduce these tragedies that befell people to their bare minimums. Now that battle was seventy percent won. However, by the time this immeasurably beneficial research was finally completed, the people who were to have benefited from it had all been killed off by another apocalypse.

Yoshizumi felt so overcome with anger and pain that he couldn't stop himself from laughing. "Everyone..." he said sarcastically, "don't look so serious. This disturbance will happen on the other side of the globe. We may feel a little of it here in Antarctica, but we won't be affected at all. There won't be any tsunami either. If this had happened a few years ago, it would have been a horrifying disaster for Alaska, but there's nobody there now. The ultimate disaster already happened four years ago. When I was putting together this report, I did get a little upset myself. But at the same time, I had to ask myself, 'So what?' A huge disturbance at sixty degrees north has nothing to do with Antarctica."

However...

No trace of ease had crept into any of the expressions. Rather, they seemed to be sinking deeper and deeper into gloomy introspection.

"Is something wrong?" said Yoshizumi. "As I was saying, Alaska is a no man's land, and this won't affect Antarctica."

"Actually...we can't say this won't affect us," Admiral Conway said in a husky voice. "Even if the North American continent is uninhabited, something there *still lives*."

"What do you mean?" Yoshizumi ventured reflexively. "What survived?"

"Humanity's hatred," replied the admiral. "The germ of hatred has survived the destruction of humanity in an uninhabited land, and it is what is tying together Antarctica and this great earthquake in Alaska."

"I'm afraid I don't understand," Yoshizumi said, looking around the council chamber. "Why would Alaska—"

"Ridiculous!" The usually calm Admiral Conway had stood up and struck the table. "It's utterly ridiculous. It's as if someone's playing pool with us as the balls. I won't say that it's God who's hitting the cue though. The God I know—well, he may exist, but not for humanity's sake. He may administer the laws of nature, but

he pays no attention to the cares of human beings at all. And it was human beings who turned nature's laws into calamity."

"What do you mean by 'pool'?" Yoshizumi asked, taken aback.

"Someone who's good at pool doesn't aim directly at the ball on the other side of the table. He hits a ball that's closer to him, which hits another ball, which bounces off the side of the table, and finally hits the last ball."

"I really don't see what you're getting at."

"Because we've told you nothing. There are some things we haven't even revealed in their entirety to everyone on the council." Admiral Conway looked around the room. He looked like he was holding back anger. "It's so utterly preposterous. And the cause of this idiocy is something created by America's first idiot president—*Silverland*."

"The former president?" Yoshizumi said.

"Exactly. He was practically a madman—a reactionary extremist so far to the right it was almost unthinkable. As the minion of a southern gang that referred to themselves as big capitalists, he was the Attila the Hun of twentieth century America. He was a man who believed that hatred, isolation, bigotry, ignorance, arrogance, and greed—bestial emotions worthy of a medieval Inquisitor—were 'bravery' and 'justice.' He didn't understand world history in the slightest, and six years ago, he intended to start another world war, this time against the 'red' countries. I still don't understand why the American people chose such a man. I'm a soldier myself, but in those days America's backwardness drove me to despair."

"So...what did this President Silverland do?"

"Vengeance is mine, I will repay,'" Admiral Conway quoted in a voice suffused with loathing. "That was his favorite catchphrase. What he did was make the ARS."

"ARS?"

"Major Carter!" said Admiral Conway. A slender man that Yoshizumi had never seen before stood up.

"Gentlemen, I'd like to introduce Major Carter. He originally belonged to the Defense Department, and in Silverland's time played a critical role in the ARS project. During the next president's administration, he was demoted and reassigned here. His mission...was to perform intelligence activities in Antarctica, and to *keep an eye on me*. However, that's already been five, six years ago, so it doesn't really matter now. We're going to hear from the major now about ARS. There are very few men in the US military who know about this system in detail."

Major Carter began to speak in a level monotone. “ARS,” he said, “was created around eight years ago by then-President Silverland and Lieutenant General Garland, who at the time was said to be a capable man at Joint Chiefs of Staff HQ. It stands for Automatic Reaction System, though you might call it the Automatic Revenge System.”

### 3. Grand Slam

“In the late 1950s, America’s preparations for fending off a nuclear attack entered the stage of so-called push-button warfare, beginning with BMEWS—the Ballistic Missile Early Warning System. At the same time, our ICBM bases, Strategic Air Command, and global radar network formed an organic system for going to war at any instant, and that gave birth to an inevitable *internal crisis*. This system had been assembled to run automatically, but the problem was that there were some extremely unstable elements inside it. That is to say, at key points in the process, decisions had to be made by easily upset human beings.”

Major Carter spoke in a level, if rather cynical-sounding, tone.

“I believe there are a number present here who remember this themselves, but from the close of the 1950s through the early 1960s, there was an ‘atomic neurosis’ plaguing military personnel involved in America’s national defense mechanisms. In 1957, there was an incident in which a B-47 on a training flight mistakenly dropped a hydrogen bomb over eastern New Jersey. At that time, its safety devices were engaged, so the bomb didn’t detonate, but when they investigated it afterward they learned that five of its six safety devices had been broken, and only the last one had prevented an explosion. There were unofficial discussions at the time about what would have happened if, heaven forbid, that nuclear warhead had exploded on American soil. There were two possible dangers: one was that the national defense system would fly into a panic and order a full-scale nuclear strike without confirming which country the bomber had come from. In the other scenario, it’s confirmed that one of our own bombers dropped it, but even so someone in the bomber’s chain of command—most likely someone secretly harboring militant feelings—gives the order for a nuclear attack in order to paper over his team’s responsibility. Ever since that time, the human element has been the problem in our strategic nuclear framework.”

Something bitter rose up in the chests of the assembled. The age of nuclear

terror, of wars of extinction, of saturation weapons, incredible networks of machinery created for the mutual destruction of one another. The long nightmare, back when "the world" had existed. Only four years had passed since the world had been destroyed, yet even so, when people heard talk of such things now, they could only think of such "defense" systems as the work of madmen. In the end, the world and its civilization had not been destroyed by the purging flames of Heaven; instead it rotted away from the ground up, consumed and killed by life-forms so tiny that the eye couldn't even see them. Humanity had died a simple beggar's death.

"In 1961, there was an incident in which an NCO working in a nuclear weapons storage facility suffered a mental breakdown and tried to fire his pistol at a nuclear weapon. There were also frequent cases in which soldiers working in this nuclear defense system tendered their resignations because of neuroses that they felt would compel them to push the button ordering an attack. Military surveys discovered that one percent of the workers involved in defense were experiencing precarious mental states and should be removed from their positions. Also, another ten percent were determined to be in need of detailed aptitude testing due to emotional instability and other reasons. At Greenland Radar Base, the moon coming out from behind a cloud was mistaken for an approaching missile, and they went on full alert. Because they'd lost contact with Alaska Base due to mechanical failure, they scrambled their jets. Although the multistep failsafe system was able to somehow reduce the danger of accidentally starting a war because of mechanical problems or misunderstandings, the danger from the human element only became greater and greater."

Everyone held their breath as they watched the sallow-faced man named Carter, wondering what in the world it was he was trying to say.

"During the Kennedy years, they tried all kinds of things. They made it so you couldn't launch a missile without keys held by five people. They made it so that SAC's ultimate attack required a direct presidential order. But Kennedy was the first one to see that no matter what they tried to secure safety, in the end there were only two choices. Would we continue walking down a path with the danger of accidental warfare and eventually fall into the abyss? Or would we completely dismantle the system?"

Everyone in the room felt as though they were hearing about the decision that Caesar had made in ancient Rome. To cross the Rubicon or to stop at its bank? Now that the politicians of the world, their anguished choices, and the world in which

their nobility and their torment had existed were all lost, the question not only seemed moot but foolish.

"The path Kennedy chose is the one that Silverland reversed by force. He tried to take us as far down the other road as possible. From the time he was elected, he was publicly declaring that we would crush the Soviet Union, and while he was in the White House—and the whole world and every American with a conscience was petrified with fear—the danger of an accidental war increased automatically.

"Let me be clear, the soldiers who were working in the nuclear defense organization—most of them, anyway—even though they believed that they had to do their jobs, they wanted strongly to avoid a war. But as soon as we headed into the Silverland years, the fear that a war was going to start right over their heads grew so strong that it created huge mental strains within the armed forces. Silverland decided to take General Garland—the most far-right man in the military and a fervent worshipper of Silverland himself—and make him his partner in creating a nuclear defense strategy that was *all his own*. ARS was the ultimate, top-secret piece of that strategy."

Silverland. That infamous man was already dead. But Yoshizumi realized that his palms were now wet with sweat.

"Silverland held two oddly misplaced fears," continued Carter. "He always acted like he was the cheerful sort who never sweated the details, but like any bully who gets the bully pulpit, his focus on the big picture was just a mask meant to hide what a scared little boy he was. He was a lot like a Southern gambler. In the end, a gambler places more value on a reckless, fearless, all-or-nothing bet than he does on reason. Silverland had reckless courage, but his intellect was just pretense, and in extreme situations, he couldn't stop himself from making childish decisions. In other words, it was his own despotic creed that no matter what contemptible thing he might do, the person who held the highest position was unconditionally the greatest person, and it followed that the highest level decisions must always be made *only* by the person in the highest position of authority."

"Enough with the psychological theorizing about Silverland!" Conway spat. "Hurry up and tell us about ARS."

"But, sir, his personality is an important point when it comes to explaining the nature of this system," Carter said, his tone quiet. "So, his misplaced fears were these: the first was not the danger of accidental war—after all, he himself had been seriously considering starting a war under the pretext of an accident if it became

necessary in the face of world opinion. Rather, he feared that the top brass would defy his command were he to declare all-out war. As is the case with every tyrant, he was unable to trust anyone. His other fear was of an attack by chemical or biological weapons without warning."

"I see..." murmured Barnes. "When you're in a gang, everyone in the world looks like a gangster."

"Because of that, the *new nuclear framework* that he and Garland came up with included a system by which missile launch control could be switched over to the White House, allowing the president to launch the missiles *with his own hands directly*. 'And now, behold, the hand of the Lord is upon thee...' That was another of his favorite phrases. And then there was one other thing. In the second year of his presidency, the ARS was installed: the complete Automatic Reaction System."

"Automatic Reaction," Yoshizumi repeated, without thinking. "You mean..."

"Yes, exactly. In the event of either a mutiny in the armed forces or an accident of some sort, or even if the nuclear framework were paralyzed by human incompetence, all he'd have to do is switch over to this system, and the instant enemy missiles hit the US, a retaliatory strike would be launched. Silverland hunted the Reds and the spies with several times the intensity of Senator McCarthy, and just because of that, he truly believed that right before the enemy launched a missile attack they would use spies or spy planes to deliver gas attacks or biological attacks and paralyze our defense organization. He used to call this thing 'my patriotism, crystallized.' Even if America was on the receiving end of the first strike, we would strike back automatically. 'Even if I am killed, the arrow of vengeance will fly from my cold, dead hands,' he once said. You must think his ways were those of a madman, but to the very end, the Nero of the White House never trusted his subordinates. He, along with the far-right military authorities, had considered a *coup d'état* had he lost the presidential election, so once he became president he was terrified of revolts from within the military. While he said he was doing his duty to defend the country, his state of mind was in fact that of someone rolling the dice. I remember him saying, 'Look here. This is my last trump card. My grand slam.'"

"And so, this system...is still operational?"

"The whole system is powered by an unmanned, underground nuclear power station. All you'd have to do is throw a hidden switch in the White House's special underground command chamber...and the whole command system is taken out of



the hands of the defense personnel and put under ARS control—and ARS doesn't even have any hands."

"Still..." Colonel Lopez put in gloomily, "Silverland was voted out in the next election, and the final president took up Kennedy's mantle again. During the summer of the Year of the Calamity, President Richardson was trying to realize a treaty that would have abolished all nuclear weapons in one fell swoop. It's unthinkable that he would have thrown that switch, isn't it?"

"There's a fifty-fifty chance that it's active," said Major Carter. "Silverland's influence persisted beyond his administration. Garland continued in his position as general. When I was sent to Antarctica the winter before the Year of the Calamity, the system still hadn't been deactivated. If someone in the Silverland faction were to have used the confusion just before the end to infiltrate the White House..."

"That is a possibility," said Admiral Conway. "I remember talking to President Richardson. He was at the White House—probably just before he died. He was indignant because the Silverland gang was trying to put pressure on him in the middle of all that great confusion."

"But even if that thing is still...alive," said Yoshizumi, "what does that have to do with an earthquake in Alaska?"

"You haven't figured it out yet?" said Carter. "The geographical point you showed us—it's relatively near the Distant Early Warning line. If the US radar stations in Alaska are destroyed by a major earthquake, the ARS Command Center will transmit a six-minute warning, and if the base doesn't answer, intercontinental ballistic missiles tipped with nuclear warheads will be automatically fired at the Soviet Union."

#### 4. The Hands of This God...

The room was pervaded with a deathly quiet. Nobody was moving a muscle. *In the world that had died, a mechanism of hatred still survived...*and now the hands of chance were about to pull its trigger.

"But the nuclear missiles will only be fired at an *uninhabited* Soviet Union," said Dr. la Rochelle, the French representative, hesitantly. "What effect will that have in Antarctica?"

"Our country's highest ranking officer will explain," said Dr. Borodinov. "May I introduce Captain Nevski of the Soviet Union's Department of Defense."

With his short-cropped hair, Captain Nevski looked up and began to speak in precise, fluent English. "To tell you the truth," Nevski said with fists clenched, "there exists in the Soviet Union a system exactly like ARS."

"Why on earth!" exclaimed Professor Bjornsen. "The Soviet Union never had anything like Silverland's reactionary period."

"A nuclear defense framework is like a game of chess," Captain Nevski said. "Regardless of whether you desire it or not, once your enemy gains a new weapon, you have to acquire one as well to maintain parity. When the enemy rearranges its pawns and makes preparations against an attack, our pawns get reshuffled as well. For the two decades following the war, the Soviet Union and America had continued this game. You should all be well aware of that. The Soviet Union's defense framework reflected the coming of Silverland's reactionary period as though it were a mirror. We were also extremely watchful and were well aware of what was going on from the very start of ARS's implementation."

"They were awfully good at spying on one another during that fearful age," Captain Barnes said, sighing.

"The politics of fear always call for a response. Silverland's policies gave rise to countless 'spies for peace' in the Defense Department, the State Department, and even in the military."

Major Carter nodded bitterly. "That's exactly right. At no other time did such a large number of national defense secrets ever leak out overseas."

"Between the enemy's methods of attack and their allies' methods of attack, our soldiers got used to the terror of their enemy overlapping with the terror of their allies. We judged that if ARS was first and foremost born out of a fear of chemical and biological weapon attacks, this actually meant that the Americans intended to use such attacks against us. Fear is always like two mirrors placed opposite one another. And also—being as there are members of the former American army present, I'm hesitant to bring this up, but—the US Army, in the post-World War II world, had a previous record of using poison gas and biological warfare."

Major Carter looked like he wanted to say something, but he swallowed back his words.

"So that being the case, the Soviet Union developed a device exactly like America's ARS," said Australia's representative King, "and there is a possibility that it is still alive as well."

"That possibility exists," Captain Nevsky said with a nod. "I'd say the odds are fifty-fifty. The Soviet Union's premier was not enthusiastic about the adoption of a system that seemed so wrong. However, a part of the Politburo, along with the Ministry of Defense and the heads of the Red Army, recommended it. We built it in great haste, in exact accordance with the schematics we received from America. So exactly the same system exists and is perhaps still functioning even now."

"When the Alaskan earthquake pulls the trigger, the uninhabited United States of America will strike, and then the uninhabited Soviet Union will strike back," said Grane, the representative from New Zealand. "And what of Antarctica?"

"First of all, if the surviving American and Soviet missiles are launched at one another, a large amount—and most likely a fatal amount—of radioactive material will be scattered throughout the atmosphere. In the case of WA5PS bacteria, the seas and the ice have most likely provided a barrier to protect us, but as for radioactive clouds, we can't rule out the danger that Antarctica will be contaminated due to atmospheric cycles. However, the real danger isn't that." Nevski, looking rather pale, swallowed before continuing. "You see, there is a high probability that several of the Soviet missiles are *aimed at Antarctica*."

This time a shock went around the room as though everyone had been struck by lightning. Their eyes snapped wide open and their faces went as white as paper.

"Why would they *do* such a thing?" Professor Bjornsen cried as his face turned red. "Why would the Soviet Union betray the faith of the international community and involve Antarctica in a nuclear war?"

"Wait, please," Captain Nevski said, pain in his voice. "That 'mirror principle' I spoke of earlier applies here as well."

"You're saying America was up to something here?" shouted one of the NASA employees furiously. "That the Soviet Union was provoked by a station we built for space experiments? By the fact that we were experimenting with rockets for space exploration?"

"Before that station was turned over to NASA for experimental work," said Captain Nevski, "the US Air Force, during the Silverland administration, walked all over the Antarctic Treaty trying to turn Antarctica into a secret missile base."

"That's outrageous!"

"No, it's true," one of the US Air Force officers who had been silent up until then put in suddenly. "In the 'dark age,' IRBMs were brought here. Silverland intended to deploy ICBMs as well. When the administration changed, and the soldiers

who had been dispatched to Antarctica were removed *en masse*—before you were sent here—they had already gone back to the mainland.”

“The reason for this,” murmured Major Carter, “was that Silverland intended to turn this place into a secret base and ‘take care of the commies in Africa and South America.’”

“So, several years ago, when the launch devices were turned over to NASA jurisdiction and they brought in huge Centaur rockets big enough to put a lander on the moon, this was a completely unexpected development. Is it any wonder they were caught off guard and mistook them for ICBMs aimed at Soviet territory?”

“If this is true,” murmured Captain Barnes, “this earthquake in Alaska will *automatically*...”

Silence fell all around the room. *Automatically*—from an uninhabited America, missiles would be launched at the Soviet Union, and when the Soviet Union *automatically* fired missiles back, a few of them would *automatically* rain down on Antarctica, where the last handful of human beings were still struggling for survival. It was God’s—no, the Devil’s—ultimate trick shot.

“This is where Silverland would say ‘the hand of the Lord’ or something,” said the NASA employee.

“If Silverland were a jealous god...” Barnes said, “then he must have been jealous of everything that lived on after him. The vengeful hands of a man who filled the White House with anger and despair six years ago, though he died along with the rest of the world four years ago, are stretching out above our heads now.”

“And so,” said Admiral Conway, looking around at the other seats, “this thing is like a stupid nightmare, but we have to believe that there is some degree of probability that a great danger is closing in on Antarctica.”

Everyone’s faces were still half believing, half doubting—steeped in the nightmare.

“ARS is still active in the American homeland, and there’s a fifty-fifty chance the switch has been pulled. There’s also a fifty-fifty chance that the Soviet Union’s system is also operational. So if we say there’s a fifty percent chance that there are still several missiles aimed at Antarctica—taking into account factors such as damage to the missile launch system—we have to think that there’s still several percentage points’ worth of probability that Antarctica is exposed to a great danger. Gentlemen...what should we do? If the dead world takes aim and fires, humanity will, as it were, die a second time.”

# CH

## 2

### RETURN TO THE NORTH

#### 1      **Operation Fireman**

Although he was thinking of writing a will, there was no time to do so until just before departure. Yoshizumi had been too busy transitioning the research he was leaving behind and with the arranging of his documents, and until the very last minute there had simply been no time to spare. Now, when it was finally time to sit down and write it, he found he had nothing to say.

Yoshizumi unfolded the piece of writing paper and, after staring at it for about five minutes, slowly began to write.

“Yoshiko—listen to what everyone tells you and grow up to be a strong, wise girl.”

After writing that far, he laughed out loud, remembering that he had not yet even seen the ‘child of the South Pole’ named Yoshiko Antarctica—an infant less than a year old—nor had he had any particular interest in doing so until now. Of course, he had been single when he came to Antarctica and even afterward had not even once laid a finger on any of the women—or “mamas” as they were now called. Humans remained wishy-washy and irresponsible right up to the moments of their deaths. Or maybe they just had so many things to say that in the end all they could write were wishy-washy and irresponsible things.

As for the distribution of his possessions, Yoshizumi asked Tatsuno to handle it, wrote down simple instructions, and sealed them in an envelope. Then he got up and handed it to Captain Nakanishi, who was standing outside his room.

Dr. Nakanishi took it, blinking eyes that were lost in wrinkles behind his old glasses. He sighed. "Isn't there some other way?"

"No, not really," said Yoshizumi. "Thank you, Doctor, for helping me out all these years."

"Don't start talking like that on me!" the old doctor said sharply, even though his voice was choked up. "The plan is for you to return alive, isn't it?"

"Yes, but..." Yoshizumi stopped.

Tatsuno appeared at the other end of the corridor and came up to stand in front of Yoshizumi. Deliberately looking away from him, he said, "The snowmobile's leaving."

"Yeah," said Yoshizumi. "Hey, Tatsuno?"

"What?" Tatsuno turned his back away. "You're a fool. Yoshizumi, there's no reason a guy like you had to volunteer for anything."

"But I did, and then I 'won' the lottery," said Yoshizumi. "It can't be helped. I'd rather consider myself lucky. Because I definitely wanted to go."

"You're a fool," Tatsuno repeated. "A bloody fool."

"Don't say that. If I didn't go, it would just mean some other guy would have to. And I think it'll be the same no matter who goes."

"You're a fool..." Tatsuno left murmuring those words. "How could you volunteer?"

It was a wonderfully clear Antarctic morning. The Central Antarctic Meteorological Observatory was predicting twenty-four hours or more of beautiful weather for the whole region of Enderby Land. May was already more than halfway over, and once again, it was time to bid the sun farewell with the arrival of the long, dark winter.

Yoshizumi stepped outside the dome of Showa Station. The black silhouettes of all of the station's personnel stood lined up on the ice outside, waiting to see him off. In the white predawn light, he looked into the faces of each of the station personnel, clapped each one on the shoulder, and shook hands with them. Hardly any of them said anything. A "see you later..." or a "take care of yourself" was the most that any of them managed. There were some among them who said nothing as they gripped his hand, though tears welled up in their eyes. At last, he came once

again to Captain Nakanishi. As though he were seeing off his own son, that older man, that great scholar of Antarctica, had tears running freely down his cheeks. "You come back," said Dr. Nakanishi. "Make it so we can laugh someday about acting as if this were a funeral."

"I certainly intend to," Yoshizumi said. "Unlike Moscow, the approach coming in to Washington is easy. And by going up the Potomac River, we can get very close to the White House."

On the ice field, the engine of the snowmobile started up. It was already looking pretty worn out, with spots of rust visible here and there, yet it was a remarkably sturdy machine, and its performance had not suffered a whit. Yoshizumi turned back to everyone once more, waved his hand, and began walking off toward the snowmobile.

Just then, the red light of the sun peeked up over the distant horizon of the ice plain. For an instant, the ice plain blazed pale pink like the wings of a crested ibis, throwing the long, long shadow of the waiting, watching captain across the ice. When Yoshizumi climbed onto the snowmobile, he waved his hand again. With the roar of the caterpillar treads, the snowmobile began to move, the sunlight glinting on its back. It was made of light alloys, so it steadily picked up speed. When it exceeded forty kilometers per hour, wide skids made of the same alloys emerged on both sides of the caterpillar treads. Both had heaters attached, and the vehicle began sledding along with brushwheels.

The white, bubble-like domes of Showa Station grew distant, and the Japanese flag that fluttered in the blue sky grew smaller and smaller, and by the time they reached Mount Tyôto it could no longer be seen at all. The snowmobile, traveling at sixty kilometers per hour, dexterously dodged pressure rings and crevasses as it headed for the Prince Harald Coast.



It took ten hours to reach Blade Station, where the Belgian team lived. From there, they took a plane to the Soviet station on the Princess Astrid Coast, and at the Soviet station a Tupolev-600 jet transport plane designed for use in the Antarctic environment was awaiting their arrival. So as not to miss the good weather, they made a single hop across the Weddell Sea to Joinville Island at the tip of the Palmer

Peninsula, and finally arrived at the submarine base. The black forms of *Nereid* and *T-232* were visible on Hope Bay, which was already covered in drift ice. At the station there, which had been jointly administered by Argentina and Chile, the members of "Operation Fireman" were assembled. On the side of the peninsula facing the frozen Weddell Sea, the Larsen Ice Shelf shone whitely as it expanded outward, already displaying the winter face of Antarctica. In the cloud-swathed north, King George I Island lay across the Straits of Bransfield, and one thousand kilometers away, separated from them by the Drake Passage, was Cape Horn at the tip of South America.

The Argentine station was a spacious structure made of steel-reinforced concrete. A number of members of the Supreme Council, as well as all the members of the planning committee, were already gathered there. Yoshizumi went to his assigned quarters, followed by gazes that looked at him as if he were already dead. In the midst of his room, devoid of decoration like a barracks for soldiers, there was a stove burning, a wooden desk, and a wooden bench placed side by side.

When he entered, Major Carter, whom he knew only by sight, and Captain Nevski, were sitting in opposite corners of the room.

"Hey there," said the young Captain Nevski. "We meet again. I never dreamed your name would turn up when we drew lots."

Yoshizumi returned a neutral smile.

Another man whose face Yoshizumi didn't recognize—a big man with a thick mustache who was whittling a piece of wood with a knife—turned to look at him, smirked, and raised a hand in greeting.

"I'm Marius," the big man said. "I'm with the crew headed for Moscow."

Yoshizumi went to stand in front of the stove, pulled off his gloves, and rubbed his numbed fingers.

"Yoshizumi, is it true there's an earthquake coming?" Carter asked as he sat puffing on his pipe.

"It's coming," Yoshizumi said in a small voice. "And perhaps even sooner than my predictions."

"Really?"

"Yeah."

It was due to his anxiety about exactly that that he had volunteered for Operation Fireman. He was confident in his calculations, but even so, it had been impossible to conduct land-based observations, so a part of the work was



somewhat slapdash. When he had checked his precise calculations one more time, he had learned that the margin of error was broader than he had thought. Naturally, he had reported this to operations headquarters, but when he thought of a number of men being irresistibly driven to their deaths by his calculations, he had been unable to stop himself and had volunteered for the operation.

In the end, there was only one plan that the Supreme Council had been able to come up with. There was only one way to ensure the survival of Antarctica, and that was to turn off the switch on that madman's machine known as ARS.

Apparently, the Supreme Council had at first been loath to take at face value what it had been told about ARS, thinking it too fantastic to possibly be true. This was because such a system could have only come to be as the result of an unbelievably childish way of thinking. But when they took a step back and thought about what the world they had once lived in had been like—push-button warfare, nuclear missiles that could destroy an enemy nation in half an hour, a hotline set up between the Kremlin and the White House—they had realized probably all of it had rested on pretty childlike thinking, and so they became ready to believe in the existence of a system designed for posthumous revenge.

In this way, though the Antarciticans were constantly telling themselves that the whole idea was ridiculous, there was still that slight possibility...And so they felt compelled to send suicide teams to Washington and Moscow because if the ARS was active, there would only be one way to avert the destruction of Antarctica. Because Major Carter and Captain Nevski knew the locations of their respective switches, it was of course decided that they should go. Then, in order to provide one assistant for each of them, volunteers had been solicited from all across Antarctica. Four thousand men had applied. They had ended up drawing lots, and Yoshizumi and one other man had pulled the short straws. At the time that the names of the firemen had been decided, an elderly scholar from the French expedition had angrily wept, holding nothing back as he publicly decried, "What do you think you're doing? What a stupid reason for these fine men to have to die! How sad that anyone should have to be destroyed for something so absurd!"

The words of the elderly scholar resounded like that famous line from Molière's comedy: "What the devil was he doing in that galley?"



All Antarcticans knew the answer. Even the four men who were going to their deaths knew it. Long years of living amid the ice, coupled with all the tears they had shed thinking of a world that had died so young, had washed away their foolish desires for glorious deaths. The four who had been chosen were themselves well aware that there would be no glory in their ends. Neither did they even have the concept of “duty” dangling behind the cheap tinsel that was glory.

Somebody has to do it, so *reluctantly*, I’ll do it.

The four men and those who would deliver them all knew that they were not going to die as heroes. Does someone who jumps into freezing water to save a drowning child do so because of some idea that they are trying to fulfill their duty? Do they do it for glory? Because they’re trying to be a hero? The exaggerated glory of players who join teams to great fanfare—heroes—don’t they make clowns out of those who go down to the grave? Antarctica was the scientists’ republic. The soldiers as well had lost the nations to which they had pledged loyalty, and by living with the scientists for four years, had broken free of those amusing concepts of military duty and responsibility, which were nothing more than mere rulekeeping. What the deaths of their comrades and life amid the ice irresistibly created in people was a clarity they could do nothing to change, as of the classical philosophy outlined in the heart of that old man.

And so they were not fearful of death, and it therefore followed that they didn’t try to stir up emotions in order to face the task ahead. They simply furrowed their brows, clucked their tongues, and went off to die. In a time when courage had ceased to be a virtue that some had and most did not, it appeared in its original, rough-hewn, true form. Somebody had to perform this task, and if no one had refused to be chosen, who would sing of the bravery of the ones who were chosen?

The common, indeed only, emotions shared by those that were chosen and the ones who saw them off were those of sorrow and of directionless anger. The sorrow of those who stayed behind—that their comrades should have to lose their lives on such a strange errand; and the sorrow of those on their way to death—that they should have to die for such a bizarre reason. And then there was that inexpressible anger toward the foolish, barbaric “world” which was carried by both those who were going and those who were staying behind—anger that even after the destruction, such an awful thing was being forced on Antarctica.

## 2. On the Last Night of Winter

"Departure is in twenty-four hours," Admiral Conway said as he walked into the room. He seemed downhearted and old this week, which was most unlike him. The three members of the Supreme Council who would be taking over for him also appeared gaunt and haggard.

"Is there anything you'd like to have done?" he asked.

"No special treatment, please," Major Carter said laughing. "Calling this an 'operation' is overdoing it. Now that I think about it, even a child could do this. We pull right up into the neighborhood in the submarine, swim to shore, and go push a button. It'd be a lot harder if you just told us to go outside in the middle of a blizzard."

"You can say that," murmured Dr. la Rochelle. "But Moscow is going to be very difficult."

"It'll be fine," said Captain Nevski. "Captain Zoshchenko knows the course through the canals very well."

"We'll be in constant radio contact," Admiral Conway said, turning to the side. "Come what may, do your job well."

"How are things coming along with scattering the stations near the Ross Ice Shelf?" Yoshizumi asked.

"We've moved the small facilities, and the mamas and the children. But the American expedition's facilities are concentrated there," Admiral Conway said, still turned away as he trailed off. "Do you really think the earthquake is going to happen early?"

"I do. I redid the calculations, but with incomplete historical data—"

"At the time, it couldn't be helped. We'll just have to pray that the Soviet missiles are few in number and high in precision. At least precise enough that they won't hit other stations—"

"That won't happen," said Captain Nevski. "After a twenty thousand kilometer flight, they are precise to a radius of one and a half kilometers from the target point."

"We eat in the big cafeteria in one hour," said Barnes, captain of the British team. "The cook was in tears for lack of ingredients, so please manage your expectations. At any rate, it'll likely be fur seal, penguin, and whale meat again."

"That's fine with me," said Marius. "It'll be the last time I have to eat penguin."

"And after that..." said Admiral Conway, trailing off. With his face turned

away, he softly set four keys down on the desk. "These are the keys for your quarters tonight. Take whichever you like."

After he had spoken thus, the three men turned their backs toward the door.

"Well, well, you're going to let us have private rooms tonight?" said Marius, casually picking up one of the four keys and playing with it in his big hand. "Now that you mention it, this station building has private bedrooms for exactly four high-ranking officers. I wonder if that means the bigwigs are sleeping in bunks tonight."

The important thing was that the meal everyone ate together was a quiet and simple affair. Only the liquor, contributed from the best each station had to offer, was luxurious and plentiful. Everyone got reasonably drunk and ate a reasonable amount. There were the occasional toasts: "To Antarctica!" and "To the firemen!" After dinner, Marius played the piano. He had an unexpectedly sure touch, and everyone was surprised to hear him playing César Franck and Darius Milhaud. When they asked him, he said that he had attended the Conservatoire in Paris and, a lifetime ago, had debuted as an up-and-coming musician. But then he'd gotten his heart broken, drowned himself in alcohol, and volunteered for the navy.

"Ancient history," Marius said, laughing. "Paris, youth, art, romance. It was a nice world, wasn't it?"

The thought that that was already forever lost sank heavily into the hearts of them all. When Marius sang "Retourné a Paris" in a low tone to his own accompaniment, it was Admiral Conway who broke into silent tears. Carter nudged Marius to make him stop, but the admiral looked up, the deep wrinkles in his face wet with tears, and stopped him. "It's all right. Please play some more—all kinds of songs. Just don't sing. If we all start remembering the songs we were on the verge of forgetting, we'll still be singing them when it's time to head out tomorrow."

Marius continued playing—many nostalgic songs of the world that had been destroyed. Folk songs, love songs, songs about daily living, songs of youth. Songs of every nation, songs of every people. As the music continued, the lost human world and its fragile way of life seemed to rise up, ghostlike, from beyond the melodies. The blue sea and mountains of the Mediterranean coast, polkas on snowy Alpine nights, lovers forever holding one another on the banks of the Seine, the crowds and the noise of New York's Fifth Avenue, the beaches of Waikiki, Tokyo at night, London soirees, the songs of farmers ringing over the fields of Russia, the voices of the gauchos singing as they crossed the pampas of South America, méringues sung at Caribbean festivals, the days and nights of the towns, villages, and cities with

all their pleasures. Parents and friends and cheerful drunks, the twilight glow that lent an extra degree of gentleness to people's faces, the floods of neon, the roller coasters, the pastoral rondo of a carousel...

"Why did that gentle old world have to be destroyed, Carter?" The elderly Admiral Conway was an old New Dealer who had participated in the Second World War and lived to tell the tale. Now he looked like a positively aged man, and even his body appeared much smaller. Like a lonely old man who had outlived all his relatives, he was sniffing and crying. "And why...why did we have to live through it? Even after our world was lost?"

Carter quietly approached the old man and gave Marius a knowing glance. "Come on, I think it's time for bed now," Carter said gently. "It's late already."

"One more toast before we go," the old man said, wiping his tears and picking up his glass. "To the world that was destroyed, to Antarctica that survived, and to you who are going to die for our sake."

Everyone picked up their glasses, but Conway, still holding his, didn't drink. He was looking toward the window intently.

"Look," said the admiral with a nod of his chin. "They're especially magnificent tonight."

Outside the dirty window glass amid the freezing cold, huge multicolored curtains were fluttering all across a spectacularly clear Antarctic night sky. Red and blue and pink...



When Yoshizumi opened the bedroom door, the light was on inside and someone was lying in his bed. Surprised, he quickly tried to shut the door, but then a voice called out from the covers. "It's all right. Come in."

In a panic, he tried to get outside. But when he checked his key, he saw that there was no mistake.

"What's the matter with you? This is your room." It was the voice of a drowsy-sounding woman. "Hurry up and come in. Close the door and lock it. You'll catch cold."

While Yoshizumi was getting over his surprise, he did as he was told. He pushed aside the covers of the rough bed, and found a fat, considerably advanced-in-age, golden-haired woman—completely naked.

"What's the matter?" the woman asked, laughing at the dumbstruck Yoshizumi.

When she laughed, many wrinkles appeared around the outer edges of her eyes and mouth. There were large bags under her eyes and the skin on her throat also hung rather loosely. Her sagging breasts swayed back and forth, and there were three creases in her stomach.

"I'm Irma Auric. You disappointed to get an old auntie like me? Couldn't be helped, though; seven of the 'mamas' are pregnant now, and five are nursing. There are some young, good-looking ones here too, but we had to draw straws; you got me, so deal with it."

Yoshizumi smiled, not knowing what else to do. Irma gave him a slap on the shoulder.

"Well, go warm up in the tub first."

The temperature was starting to drop, and it was four degrees Centigrade in the timeworn bathroom. Shivering, Yoshizumi got into the tub without the benefit of a heater. When he came out, Irma had turned down the lights, sat down on the bed, and was holding her head in her hands firmly. The lines of this obese middle-aged woman's body rose up in silhouette. When Irma looked at him, a tired little smile appeared on her face.

"Well," said Irma in a thick voice. "Come on over, Mr. Handsome. What did you put your on boxers for?"

Standing there in the entrance to the bathroom, Yoshizumi suddenly felt a desire for *something* blazing up inside him. It was something that was very nice to have when one couldn't relax—something absolutely necessary in embarrassing situations—it took him two full minutes to realize that what he wanted was a cigarette. More than a year and a half had already passed since the last of the tobacco had disappeared from Antarctica. Grimacing, Yoshizumi sat down in a chair. The room was stuffy and hot. Irma got up from the bed and came over. Holding Yoshizumi's shoulders with her powerful fingers, she gave him a perfunctory kiss. The white woman's strong body odor was cloying, and a faint odor of cheese was coming from her mouth. After that, she pulled away immediately and plopped back down on the bed, arms and legs open. After which there was a silence that continued for quite some time.

"What's the matter?" said Irma. "Not coming?"

Yoshizumi said nothing. Irma slid off the bed. "What, you impotent or something? Or—this isn't your first time, is it?"

"No!" said Yoshizumi, frowning. "I'm thirty-five already."

"Were you married?"

"No."

"Thirty-five—you don't look it. Japanese people look young, don't they?" Irma sighed as she spoke. "You don't want to? Because I'm over the hill?"

"It isn't that—please understand," Yoshizumi muttered.

"You're a funny one. All this time, and you've never had a woman? You've never slept with one of the mamas?"

"No."

"The white men always just about break down and cry. I may be past my prime and I may be ugly as sin, but a veteran knows more about how to treat a man than some young chickadee. So I get good word of mouth with the young guys. You really don't wanna do it with a woman? Even after doing without for four or five years? Maybe you think a doll would be better? They say they make some good ones in Japan."

"Is that so?"

Suddenly, Irma drew herself up and spoke deeply, from her diaphragm. "Look over here."

Yoshizumi looked at Irma. Irma's face, limned by the diagonal backlight, was majestically beautiful. She had long years of experience as a woman and probably as a mother. It was a face suffused with dignity.

"You're leaving tomorrow—and not coming back, right?" Irma murmured in a slightly muffled voice.

"I'll send you a postcard from Washington."

"For such a nice young man to have to die." Irma's hazel eyes grew moist.

"Three and a half billion people died," said Yoshizumi. "And now the last ten thousand survivors are about to die as well. Too many have died already."

Suddenly, Irma covered her face and burst into tears. The flesh of her bare shoulders trembled.

"Don't cry, please." Yoshizumi hesitantly put a hand on Irma's shoulder.

"I'm sorry. To be honest, I'm tired," said Irma, sniffing and tearful. "I'm the oldest of all the mamas. It's not just women that come to my place; there are hairy-faced men too. Every single day, so many men. As the cheerful older lady, as the mother, I've always seen very clearly what people are like inside and out. And I'm a middle-aged lady who knows all about the ways of love as well. About men who

are growing exhausted, despondent, and hysterical. Every day—every single day—encouraging them, comforting them with my body like a holy whore, I’ve been with thousands of men by this point. And going forward, I just think, ‘How much longer will this go on?’ These dismal nights that last half the year in a world where there’s nothing except ice and snow.”

Yoshizumi quietly stroked the hair of the sobbing Irma. “How about resting for a bit?” he said. “You have a body that’s much more important than mine. From now on, for how long I can’t say, but from now on, we’ll need you to cheer and encourage the men.”

“I’m sorry. I was supposed to cheer you up on your last night, but...” Irma finally wiped away her tears and lifted up her face. “You sure you don’t wanna sleep with me, kid?”

“Sex is not such an intrinsic part of being human, *Mama*,” Yoshizumi said, smiling. “The idea that sex is an important part of life is a delusion of novelists.”

“You’re talking to me like I’m a child,” Irma said, laughing even as she cried. “When I came to Antarctica on navy duty, I used to talk big, as if I’d just got into college.”

“There is something I’d like to ask you to do for me,” Yoshizumi stammered.

“What?”

“My father died young, but my mother was healthy and lived in the country with my brother and his wife.” Yoshizumi suddenly felt something welling up in his own throat, and hurriedly coughed to clear it. “I was often away on long trips, and when I’d occasionally come back for a visit, I’d rub my mother’s shoulders. Mom always looked forward to that.”

Irma looked up at him. She had cried her gray eyes out, but now they brimmed with a kind of light.

“What a nice boy,” Irma whispered. “Are all Japanese so kind to their parents?”

“Can I give you a shoulder rub?” Yoshizumi said with feeling. “It’s the last thing I’ll ever ask of you.”

Irma stared fixedly at Yoshizumi’s face and suddenly moved herself facedown on the bed. A sob made its way out from the pillow where her face was pressed.

Yoshizumi approached Irma’s back and silently, gently began to rub her shoulders. They were rough with golden down, sprinkled with specks, freckles, and spots, and the flabby flesh was white—and tinged slightly purple—completely unlike the thin little shoulders of his mother. But even so, he massaged them with



all his heart. It was a strange sight indeed. In a locked room on a frozen Antarctic night under rippling auroras, a nearly naked man and a naked woman—young man who was to die gently, carefully massaging the naked flesh of an overweight middle-aged woman. Irma began lightly snoring into the still-damp pillow. Tears had washed the makeup from a face that was covered in tiny wrinkles. On her forehead one deep, vertical crease was drawn tight.

### 3. Return to the Dead Capital

It was nearing high noon on the following day when two black shadows began swimming silently northward across the mist-shrouded waters of Hope Bay, pushing their way through the crust of pack ice that had begun to form on its surface. At last, they were putting behind them the long winter and the night that lasted half the year. Mist blew against the dark shapes of the men on the cliffs who had come to see them off, while heavy, lead-colored snow continued to fall in the midst of the Weddell Sea. Although it was natural that those who were leaving behind the solid white world closed off by night and cold, who were bound for a world drenched in sunlight and green, should feel joyful at this time, everything was now reversed. Those who were seeing them off were overwhelmed by a grim sense of melancholy, as though they were watching a pair of coffins being carried away in a funeral procession, and those who were headed north had their heads hung low in sorrow. These two coffins, carrying four sacrifices for the bloodthirsty gods that had survived the destruction of mankind, who ruled over uninhabited lands, were some ways off from the middle of the bay when they were swallowed up in the swirling fog and lost from view of the shore. Only the sounds of two sirens rang out beyond those mists—sharply, wistfully—echoing off the ice shelf and the icebergs, signaling both submersion and farewell. Even after their lingering reverberations had faded, the people atop the cliffs stood still in gloomy, motionless silence until the low sun that announced the arrival of winter showed its face just briefly from across the sea of ice, then hurriedly dipped below the horizon again.



In an out-of-the-way spot amid the Antarctic Circle, the two submarines called out to one another again with their sirens, and there their courses parted. *Nereid* could head north along the Atlantic coast of South America, cross the equator, and

reach North America, but the Moscow-bound *T-232* would have a much longer journey, since in order to reach Moscow, it had to travel farther north, enter the North Sea by way of the English Channel, circle around the peninsula of Denmark, enter the Baltic Sea, then the Gulf of Finland, then by way of the canal from Leningrad enter Lake Ladoga, Lake Onega, and Rybinsk Reservoir before heading south, taking the canal from Kalinin on the headwaters of the Volga, and crossing through a part of the Valdai Hills before finally arriving in Moscow. For that reason, *T-232* was traveling fast—at a speed of twenty-seven knots.

"If *T-232* keeps up that kind of speed, I have to wonder if they'll have enough fuel for the return voyage," Slim wondered aloud as he watched the receding point of light on the underwater radar board.

"They're carrying all the fuel they can," said Mihailovich, who—off duty—was standing behind Slim. "I know all about that kind of sub. The nuclear reactor is the same kind as *Nereid's*—a pressurized light water reactor. Still, if you keep driving it at full power, waste products start building up a lot faster."

"And if that happens, *T-232* might not be able to make it back?"

"Captain Zoshchenko understands," Mihailovich murmured, holding his head in his hands. "Most likely, everyone on board knows. They just won't talk about it."

Thus their long, dull, isolated voyage began. In no time, the temperature of the air inside the submarine began to warm up, and the air conditioner was switched over from "warm" to "cool." After rounding Cape Blanco, their heading changed from north by northeast to north by northwest, then the vessel crossed the equator and headed into the northern hemisphere. The two sacrificial lambs—Yoshizumi and Major Carter—were treated as guests on the ship. Both of them were given private cabins, and both of them kept themselves locked away inside them, almost never seeing one another or other crewmembers face-to-face. No one knew what Major Carter was doing in his room, but Yoshizumi had brought a portable computer into his room and continued his calculations day after day. The longer he continued, the more impatient he became.

They passed east of the Lesser Antilles, and soon after—about the time they were crossing the Tropic of Cancer—Yoshizumi received a visit from Dr. de la Tour. Dr. de la Tour was both a medical doctor and an expert on microbiology. He sat down in a chair in Yoshizumi's cramped cabin, and for a long moment, looked downward, rubbing his fingers.

"What is it, Doctor?" Yoshizumi asked when he could wait no longer. "Do

you have some mysterious secret you want to talk about?" He laughed at his own little joke.

"Actually, I do," the doctor said, looking up from his hands. "The experimental phase has been terribly short, but since you're on a kamikaze mission, this is hard to just come out and say, but..."

"What is it?"

"It isn't right, calling it the 'Linskey virus.' 'Linskey nucleic acids' would be all right, but..." The doctor was stumbling all over his words. "I've only been at it for the one month since this voyage began, so I don't have much confidence, but I've made a kind of variant form of the host bacteria. WA5PS."

"The host bacteria for the Linskey nucleic acids?"

The doctor nodded. "If it's variants you're looking for, there have been dozens of them made before now. Nothing that looked like it might be good for anything, though. If it was a virus, we could kill it with pharmaceuticals or weaken its toxicity and make it into a vaccine. But when it comes to these reproducing nucleic acids, there's just no way to synthesize *individual proteins*, is there?"

"And so?"

"I thought about making a variant with chemicals and tried a number of different things, but no matter what I tried, it never went very well. At any rate, we're rather short on microbiological research facilities in Antarctica. It was like fumbling around blindly. Even this last time, it was nothing more than a shot in the dark—"

"What are you getting at?"

"To make nucleic acid mutants, I tried using beams of neutrons." Dr. de la Tour's eyes suddenly shone. "Even before now, bacterial and viral mutants have been made using radiation, but those experiments used primarily gamma rays and X-rays—just stuff on the electromagnetic spectrum. That's because electromagnetic waves are easy to make. When it comes to particle beams, electron rays—beta rays—are the beginning and end of it. There have hardly ever been any experiments using beams of heavier particles, like protons and neutrons."

"Would the source of a neutron beam be a nuclear reactor?"

"Yes, that's exactly right. Even in our research, we've occasionally done gamma ray irradiations using cobalt-60 as the source of the beam, but we didn't get much for our efforts. Still, these bacteria and nucleic acids are utterly bizarre little fellows, so when I hit them with fairly dense, fairly high-speed neutrons, a

very strange mutation took place. Naturally, most of them died under bombardment. However, there was an interesting little fellow among the diehard holdouts that survived." Dr. de la Tour suddenly lowered his voice. "Hot neutrons—that is to say, neutrons at low or middling speed—are no good. I tried it using the breeder reactor at Shackleton Station."

"Weird little fellows, you say?" said Yoshizumi, just to show he was listening.

"Incredibly weird little fellows! High speed neutrons, of all things—I don't know about outer space, but this is something that absolutely does not exist on Earth."

"Electromagnetic radiation doesn't work, but hit it with a beam of heavy particles and it mutates—why on earth is that?"

"I haven't the slightest," said the doctor. "Living things only mutate via chemical changes, so I'd thought that any kind of radiation that was strong enough to spark chemical reactions on the genetic level would work as well as any other. I guess we'll have to proceed from molecular biology to nuclear biology now. For example...suppose it happened because there's some element in the nucleic acid that absorbed neutrons and became an unstable radioactive isotope, then decayed rapidly into something else."

"And? What kind of mutant did you make?"

"Well, up until now, it was a reproducing nucleic acid, but very suddenly, it started acting more like a virus," said the doctor, leaning forward. "All around the nucleic acid, small particles of a protein called capsomere began to attach themselves. It became something midway between a living virus and the bare nucleic acid. And then it—it stopped invading human cells, and became a mere bacteriophage."

"You say it doesn't invade human cells?"

"Exactly...when WA5PS bacteria are replicating in an inorganic system, the Linskey nucleic acid is in the form of a prophage, as it were, hiding in the bacteria's chromosomes. Then, when the bacteria begin to incorporate foreign proteins and replicate, that serves as a stimulus. The nucleic acid consumes the bacteria and comes bursting out. Then it invades human nerve cells. The mutual antibody-antigen relation between germs and the human body provide the nucleic acids with their one and only stimulus for spreading. However, the mutant Linskey nucleic acid, like a normal phage, destroys *only* the WA5PS bacteria and hardly grows at all inside human cells grown in tissue cultures."

Yoshizumi realized that somewhere along the way he had clenched his fists tightly. "That's an incredible discovery, Doctor," he said in a thick voice. "But does that mutant virus kill *normal* bacteria?"

"Even in a simple inorganic reproduction cycle, it's very easy to stimulate prophages and make bacteriophages pop out from them. Just hit them with a little *ultraviolet light*, and they'll start eating up the cells one after another," Dr. de la Tour said nodding. "It's just—if these things could suppress the growth of Linskey nucleic acid in the human body—or the division of their host cells in the human body—even a little, it would be so wonderful. What's becoming clear is that if this mutated virus infects normal WA5PS cells that have the Linskey nucleic acid compound factors incorporated into their chromosomes, the cells will make *only the mutated virus* when the time comes to self-destruct. They won't make Linskey nucleic acids."

"If that's true," said Yoshizumi, "does that mean that this mutant virus—if it can exist at sufficient density within the human body—could suppress the Linskey nucleic acids to some extent?"

"I don't know. It does appear that the antigens formed in the human body due to the mutated virus do, to a degree, suppress the replication of the nucleic acids themselves. WA5PS is too dangerous to handle, so we still haven't done even one animal experiment in Antarctica. Indeed, if WA5PS gets any colder than minus twenty-five degrees, inorganic reproduction also comes to a halt. But even at low temperatures, it still won't die."

"So...what you're telling me," said Yoshizumi, "is that you want to perform a live body experiment *over there*, eh?"

"I'm sorry. But I just couldn't come out and say 'Let me use people as guinea pigs.' The nature of the mutant virus itself is not well understood, after all."

"I'll do it gladly," said a sudden voice from the entrance of the cabin. At some point during all this, Carter had come by and had been standing outside. "Edward Jenner and even Hideo Noguchi experimented on their own bodies and on those of flesh and blood relatives. And since I'm gonna die anyway, I'll do anything you ask."

"If that's the case," said the doctor, his voice trembling like a leaf, "I'll inject you with it when it's time for you to depart. I'll talk to the captain, and if at all possible, get him to have you carry a shortwave radio strong enough to communicate with Antarctica."

"I've got one among my gear," said Yoshizumi. "I'll keep reporting until I'm dead."



*Nereid* at last passed by the Bermuda Islands and drew near to the state of Virginia. They passed to the north of Cape Hatteras and found themselves in Chesapeake Bay in no time. The previous night there had been another farewell party inside the ship. At that party, Colonel McCloud had gotten drunker than anyone else.

It was during the still-dark predawn that the officer on watch came to report that he had felt an unusual shudder running through the whole structure of *Nereid* as it rested still on the seafloor. Apparently, there had been an earthquake in some far-off place. This news resulted in plans for departure being moved up by about an hour.

Taking care to go slowly because of the bay's shallow interior, the ship gradually made its way toward the mouth of the Potomac. After several minutes had passed in which it was hard for the crew to tell whether the ship was moving or not, there was a faint shock in the bottom of the vessel, and it came to a stop.

"All hands," Colonel McCloud said, turning to face everyone, speaking in a voice that sounded like something was caught in his throat. "We have arrived in Washington."

The two men who had received Dr. de la Tour's injections were already wearing rubber diving suits and were standing with aqualungs strapped to their backs. When they heard the captain's words, they exchanged silent handshakes with all who were present with them.

"Farewell," said the captain, squeezing their hands firmly with his own hard, bony hands. It looked as though he wanted to say something more, but although his wrinkled Adam's apple moved up and down, he turned his face away in the end.

"Live for as long as you can," Dr. de la Tour said. His face was pale and his voice weak. "It may be difficult, but please keep responding till the very end. Your fever, pulse, how you're feeling..."

The two of them waved their hands and got into the escape tube. Behind them, the final door between themselves and the world of the survivors clanked shut. There was the hiss of a valve being opened.

"Here we go," said Major Carter, not yet wearing his mouthpiece, his eyes smiling ironically behind his diving goggles. "With this, it's sayonara to Antarctica and the world of the living. How's it feel?"

"Like we should get moving," Yoshizumi said loudly. "That last tremor has me worr—"

His last words were cut off suddenly by an torrent of water that came pouring in from overhead.

The two men swam out of the ship through the escape hatch and out into the open water. They opened the lid of a storage container near the bridge of the ship and pulled out a rubber raft that was loaded with items stuffed in waterproof bags. With one pull on a string connected to the lever of the compressed air tank, the raft inflated halfway and began to rise to the surface. When it neared the surface, the pressure-activated switch of a second air tank opened automatically, and the raft shot toward the surface like an arrow.

When the raft surfaced, the two men tore away the masks occluding their view, threw away their aqualungs, and began rowing as soon as they had shimmied up into the raft.

It was a fine morning in early June. White clouds floated in a spectacularly blue sky, and ripples in the river were lapping gently at the sides of the rubber boat. The hushed, silent city of Washington, DC, was covered in dazzling greens. The row of cherry trees that lined the shore of the Potomac were already grown thick with summer leaves. For a moment, the pair stopped rowing. They looked all around at a world that was almost too brilliant—too colorful—to eyes that had been so long imprisoned in a world of ice. They filled their lungs with great breaths of crisply refreshing warm air—with air that was filled with fearsome death. Here and there, rusted boats and battered, half-sunken barges were floating on the surface. The grass was wild and overgrown in Potomac Park, and in the parking lot beside the train's iron bridge, cars that had lost their color from being exposed to wind and rain were peeking out from amid the tall grasses. On the left shore, in the Arlington area, they could see the Pentagon. Even the building that had once controlled the most powerful army in the world was now just an empty shell.

After passing under the Rochambeau Memorial Bridge, they could see the lovely white dome of the George Mason Memorial. Once they had rowed the boat into the tidal basin, that symbol of Washington—the obelisk of the Washington memorial—rose up in front of them, the solitary point of its sharp outline jutting

up toward the blue sky, all the more lonely with no one there anymore to look up at it.

Washington was a city of chalk swathed in green. Amid bright light reminiscent of summer, for just a brief moment, it seemed as if it had merely nodded off to sleep. However, they soon began to feel the terrible silence that seemed to absorb all sound, telling them that the capital of the former United States was now under occupation by the army of the dead.

Beside the beautiful waterside where the Washington Monument threw its sharp shadow, several bleached skeletons clothed in rags could be seen peeking out from among the overgrown summer grasses. They landed the boat at the water's edge near North Potomac Park, and when they looked down the road that ran straight north, they saw several cars and buses sitting abandoned on the white pavement of the street. Between them, lying half buried in mud and dust, were heaps of white bones lined up all the way to the intersection of K Street and Connecticut Avenue at the north end of the street. The two men brought the boat ashore at the water's edge and silently opened the waterproof bags.

Inside the bags were food supplies, clothing, and shortwave radio communication devices. The radios were for live use, and once both men had attached portable wireless devices to their shoulders, Carter communicated briefly with *Nereid*, which was submerged in the mouth of the Potomac.

"This is Carter. We've landed safely and will head directly for the White House."

In the bottom of the bag there were a couple of other things jostling around. Yoshizumi pulled them out; there were two automatic pistols.

"Are we supposed to figure out whether these are for self-defense or to commit suicide with?" muttered Carter in a low voice. For a moment, he held the thirty-two caliber pistol in his hand as though measuring its weight, but at last he said, "Let's go."

Although they were in a hurry, the area was filled with obstacles that slowed the two men's pace. Green trees slowed them. The sweating sun and the cool breeze slowed them. It had been four—no, five years since they had last set foot in a temperate zone. The pair were headed straight north along the park's central street. The beautiful tree-shaded paths that stretched from east to west in that area were now overgrown with both trees and grass. To the distant right, like a huge white skull, they could see the Capitol building.



In the midst of the intersection at Constitution Avenue, a bus and a tractor-trailer had collided and overturned. They appeared to have burned; the paint was blackened, and rust clung to their twisted hulks. From the broken windshield of the bus lying on its side, the forehead of a badly damaged skull looked like a broken eggshell. Shards of glass that had buried themselves in the punctured bone were peeking out, glinting brightly in the strong sunlight. The sound of the two men's wet rubber soles as they squished along the dusty street was irritatingly loud. When one of them cleared his throat once, it seemed as if the sound were being absorbed by the streets, soaked up by the entire capital city.

With each step, the deathly atmosphere gripped the two of them more tightly. At the roadside, in empty, open windows, in sitting positions on the front steps of buildings, everywhere they looked, there were bleached bones—countless skeletons staring at them from empty eye sockets where rainwater had collected, clenching their teeth in anguish, looking as though they were crying out at them in voiceless remonstrance from jawbones that hung open, exposing the rows of their teeth.

*What have you come here for? This is our capital city. In the four years since living things stopped walking this street, not a single thing with warm blood, with moist breath has walked this street. Are you trying to break the law of our nation?*

Had there been a flood? Mud had collected in a small gutter by the sidewalk, and weeds were flourishing there. Something moved there and their eyes locked onto it instantly, but it was just a ruined scrap of paper being blown about in the wind. Among the weeds, small flowers were blooming, and flies were buzzing around, as were some kind of small winged insect that neither man knew the name of. When they had come as far as the front of the Corcoran Gallery of Art, Carter came to a sudden stop.

Lying facedown in a pool of mud that had accumulated around a large branch of a tree that had fallen down in the road was the small skeleton of a child almost exactly one meter in height. At the end of one slender leg bone was one small, faded shoe. Though it was so covered in mud that it looked like a black clump of dirt, Carter could make out the horizontal stripes on the cloth of a jumper skirt the white bones were wearing, perhaps having not decayed because it was made of synthetic fibers. A bare handful of golden hair was wrapped around the tree branch.

"Beth!" Carter cried out, his voice sounding like it had been wrung from his throat. "Bethie..."

Carter knelt before the little bones as though he were possessed.

"Carter!" Yoshizumi went pale in the face and grabbed Carter by the arm. "We have to hurry; there's no time to waste!"

In the very instant that Carter was kneeling down, Yoshizumi felt *something* race swiftly, suddenly through his blood. Had it been a slight shudder in the earth beneath his feet or some kind of flash of intuition? Either way, at that instant sharp bird cries pierced the beautiful blue sky. He had no time to wonder what species might have survived or how; flocks of nameless birds took flight all at once from every tree and every grove with a roar of wings that was like a storm breaking out amid the dead stillness of the capital.

"It's coming! Carter!" cried Yoshizumi. "Hurry! In less than five minutes—"

Carter sprang back away from the bones and started running for all he was worth. The White House was already very near. Carter rounded the back of the Department of State building, then kicked aside a skeleton in a guard's uniform, sending it clattering across the street. Yoshizumi tripped on the skull, wearing its MP helmet at a cheeky angle, and nearly fell over.

The splendid lawn in the inner garden of the Executive Mansion was completely overgrown with unruly summer grass and was now on its way to becoming a field of dense blades. In the very rear of the field, Yoshizumi saw the famous portico of the White House, which he had only ever seen in photographs before. Carter was running through the thick grass. It rustled as he clawed it aside.

"Be careful!" Carter shouted at Yoshizumi, who was following behind. "There's a fountain, so don't catch your foot on it!"

In places, the grass was even taller than they were. Occasionally, it would bound back suddenly, slapping them on their faces, or they would run right into webs where large, beautiful yellow and black spiders braced their legs to avoid being knocked to the ground.

"Aah!" Carter suddenly cried out.

He raised his arm up high as though trying to avoid something, then something that looked like a black stick swished up out of the grass and bit into his wrist. Carter slammed his arm against the grass.

"It's a snake!" he cried. Muffled by the grass, a gunshot rang out at the same time, just ahead of Yoshizumi's eyes and nose, and a white cloud of smoke came blowing through the grasses. "They're vipers! Don't step on them. They're everywhere!"

Amid the grass in front of Yoshizumi, a long, brown shape slithered past. For an instant, the sunlight made its fat, smooth belly shine as though it were phosphorescent. Yoshizumi used his pistol to shoot the flattened head off of a second one.

"Carter!" Yoshizumi called to the figure running on ahead. "You've got to treat that! Tie your arm..."

"Weren't you the one who just said we had to hurry?" Carter was audibly sucking at his wrist even as he ran.

*Ah, don't run,* thought Yoshizumi as he raced along behind him. *You'll just make the poison spread faster.*

About ten meters ahead of him, he saw Carter leap up onto the portico. From right at his feet, a huge snake slithered away through the accumulated dust and slipped into the grass.

*This proud executive mansion is just another haunted house now,* thought Yoshizumi.

It didn't feel strange at all to call it a haunted house. The high ceilinged, venerable building was terribly dusty, and in the corners of its hallways and in rooms fitted with luxurious but faded, dust-covered furnishings, there were a number of skeletons lying fallen on the floor. Yoshizumi had lost sight of Carter. He wandered into a room that was brilliant with gold, and there he found three skeletons.

One was sitting in a chair at a table facing the front, and another was lying on the floor some distance away. Long strands of cobweb hung down from the chandelier, and he was just reading the words PRESIDENT'S ROOM above the door when he heard Carter's voice coming from down the hall.

"This way! Yoshizumi!"

Carter was trying to pry open the door of an elevator. His left wrist looked like it must be in a lot of pain.

"How many minutes?" he asked between ragged breaths.

"If what we just felt were preliminary tremors," Yoshizumi said, "and with Alaska being forty-five hundred kilometers away...it would have started in Alaska six minutes before we felt it."

"It's already been four minutes at least."

"There are still possibilities," Yoshizumi said. "Once that uninhabited radar base is destroyed, ARS is supposed to keep sending a call signal for five minutes, right?"

Carter threw himself against the door once more. When it finally opened, a black, seemingly bottomless space yawned open before them.

"The elevator's down there," Carter said in a tense voice as he looked down into the shaft. "It's on the very lowest level—Basement Level Nine. *Somebody went down there.*"

"Are there stairs?"

"There's a ton of emergency doors, so that way would take even longer."

"Carter!" Yoshizumi shouted. Carter was bracing himself, looking at the cable that glinted in the midst of that darkness. "Can we really make it down nine levels that way?"

"Wrap some cloth around your hands!" said Carter. "And don't slide."

Yoshizumi had never imagined he would ever become involved in a struggle like this—a veritable adventure story in which the hero comes to the shores of a city choked with death, then climbs nine levels down an elevator shaft in the empty White House in order to save Antarctica from a nuclear strike. As he thought about this doubtfully, he held on tight to the cable. His hands grew hot in no time, and sharp pain ran through them. In one spot, there was some fraying on the cable, which suddenly ripped the rubber of his diving suit.

When they finally landed on the roof of the elevator that had stopped on the ninth level, the footing was bad and it took time to open the door to the eighth level. When they at last pried it open and crawled up onto Level Eight, more time was lost searching for the stairs down to Level Nine in the pitch black hallway. It was during this time that Yoshizumi again felt faint vibrations at his feet, this time quite clearly. He was inside a mass of steel and concrete thrust deep into the ground. Growing desperate, Yoshizumi did some mental calculations. Had the one just now really been the P wave? Even in a place near the epicenter, an earthquake's greatest amplitude comes a few minutes after the preliminary tremors. The empty base in Alaska would be completely destroyed at that point. And then it would take six minutes for the P wave—the very first oscillation in an earthquake—to reach Washington D.C. When they felt it here, it would have happened six minutes earlier in Alaska already, then some minutes later the big wave would hit. The base would be destroyed, and ARS would begin its countdown six minutes from that instant.

"Yoshizumi, get down!"

Suddenly, Carter came running down the hall. He grabbed Yoshizumi by the

shoulder, pushed him into an open room, and shut the door. Then he leaned back against the wall next to the door and slid down to the floor.

"What about the stairs?"

"I found 'em, but the shutter was down. I used two grenades. Down and open your mouth!"

No sooner had he spoken than there was a powerful roar and the door flew open and banged against the wall. A hot wind that reeked of gunpowder rushed into the room.

"If that elevator shaft hadn't let out the wind from the blast for us, we'd both of us have ruptured lungs now," Carter said over echoes of the explosion that roared through the darkened corridors of the building, resounding as though they would go on forever.

The two men at last crawled through an upturned tear in a half-inch-thick steel plate.

Carter, running down the stairs, asked in a voice that seemed to be losing all of its energy and warmth, "Can we still make it in time?"

"I don't know," Yoshizumi said. His skin was hot from effort and anxiety. "If you're going to pray, now's the time!" he said, his voice more shrill than he meant it to be.

In the long hallway on the ninth level, both of them tripped over a skeleton, stumbled, and fell to the floor in a clatter. In the dark hallway's deepest recess, a single point of bright red light blinked.

"That's it!" Carter shouted. "There it is!"

The two of them got up and started running, but yet again they tripped over a skeleton and fell down hard. The toothy faces of the skulls seemed to be laughing, lying in wait for them in the darkness at their feet, waiting to entangle them with hands that were nothing now but bone, to trip the men who dared battle against death itself. When at last they leapt back to their feet, Yoshizumi felt Carter crying out in a voiceless scream.

His eyes snapped open wide, and the point of light that had been blinking until now disappeared. In its place a bright orange light began to shine.

"Did it...?" Carter said.

When Yoshizumi staggered into the room, the orange-colored light turned to green.

Behind a couch that had been pulled away from the wall, there was a round

hollow from which the green light shone. Carter, breathing heavily as he tried to reach a hand out toward it, said in a low, hoarse voice, "We're too late. The missiles have launched."

Yoshizumi reached out to flip that red switch into the OFF position and touched the fingers of a skeletonized hand that was hung on the edge of the hollow. He reflexively pulled his hand back. Of the bones, only the forearm, hand, and fingers dangled from the hollow. The joint of the elbow had come loose. A skeleton wearing a military uniform lay right against the wall.

"It's Garland," Carter said, his voice like an escaped sigh as the skeleton was illuminated by a pool of green light. "My former boss. You've finally gone and done it. We're all done, now. You and Silverland, and your—"

"*Nereid*, come in!" Yoshizumi switched on the mobile wireless radio that fit snugly against his shoulder and shouted into it:

"This is Yoshizumi—we have Emergency Condition A; all missiles have launched. My deepest apologies for not getting there in time. Withdraw from the bay immediately. Please inform Antarctica."

"Roger," a faint voice replied. Yoshizumi knew that in the silently waiting ship in the mouth of the Potomac, a rushed furor was being stirred up.

"After that," Yoshizumi said into his transmitter, heedless of whether or not anyone was still listening, "please tell Dr. de la Tour: It's too bad we were unable to perform that experiment after you worked so hard. Over."

"Well," he heard Carter murmur in the darkness, "this is the end of everything."

"Yeah," Yoshizumi said in a low, utterly depressed voice. "This is it."

He heard the soft thump of Carter sitting down in a chair. Yoshizumi peered at the unblinking green light that shone on the wall.

"How many minutes will it take for the Soviet missiles to get here?" Yoshizumi asked.

"Who knows?" Carter said weakly. "Our missiles will take just half an hour to reach Soviet airspace."

"So then, retaliation arrives in one hour?"

"No. To hear the CIA people talk, their ARS system is more advanced. As soon as it picks up a large number of flying objects on radar and its electronic brain judges them to be missiles, it automatically..."

He could hear Carter's voice coming from a terribly low place, and without

thinking he turned toward him and saw in the dim green light that Carter was sitting not in the chair, but was instead lying on his back on the floor.

"Carter!" Yoshizumi said, kneeling down beside him. The swelling in Carter's left wrist reached all the way into the sleeve of his rubber suit, and half his face was also swollen and purplish as well. *With all the running and the venom in his veins, it was a wonder he held out until now*, Yoshizumi thought. He squeezed his hand, and a faint smile appeared on Carter's swollen face.

"We tried our best, but it was all for nothing, wasn't it?" said Carter. "If we'd known we'd never make it in time, I wouldn't have run like...Now stop that right now."

Yoshizumi had cut open his suit with a knife and was getting ready to inject Carter with morphine, but Carter stopped him with his right hand.

"Does it hurt?" Yoshizumi asked.

"Oh yeah—but either way, we're both gonna be dead in the next forty-five minutes."

"Soviet missiles are aimed at Washington?"

"We've got ours aimed at the Kremlin. Of course they'll come here." Carter inhaled deeply. "But forty-five minutes...that's a long time."

"Will you drink some water?"

Carter shook his head.

"Forty-five minutes...it's too long—do people have to die suffering until the very end?"

"Carter."

"Go cover the light for a minute, would you?" said Carter. "Turn it toward the wall."

As Carter was groaning in pain, Yoshizumi could tell that he was squirming about on the floor. Did he want to die in the dark?

"It's strange," Carter said. "We've hardly ever spoken. 'Cause I don't know a thing about you. To think you'd be beside me when I died—I never imagined it."

"Yeah," said Yoshizumi. "It's strange."

"The light!" Carter shouted in sharp tone. Then, in a faint voice, he murmured, "Beth..." and then a sharp, crimson flash raced through the darkness with a reverberating blast. The smell of cordite was pungent and strong. Yoshizumi uncovered the light and saw that Carter had shot himself through the head.

Carter...Yoshizumi mouthed his name without saying it aloud. Then he took

both of Carter's hands, now soaked with the warm blood that was gushing from the wound, and folded them on top of his chest.

*Everyone and everything; we're done*, thought Yoshizumi. A terrible exhaustion assaulted his whole body, and standing up felt like an impossible feat. He searched around for a seat, sat down, and then suddenly the tears overflowed and came pouring down. The green lamp continued to burn without change. As he stared into it—the light like the eye of one of those gigantic reptiles—he tried to look back over those thirty-five busy years that had been his life.

And yet not a thing came to mind. The only thing that he could think of was that at the house in his hometown where everyone had died long ago, the magnolia tree by the side of that towering straw roof must be in bloom, its flowers big and white about now. After that, he gazed at Carter. One side of his face was illuminated faintly by that green light that glowed like some disembodied spirit. Yoshizumi wondered, *In a thousand years, or in two thousand, what will the archaeologists who dig up this underground chamber make of it?* In the ninth underground floor of ancient America's former top official residence, they would find a skeleton wearing a military uniform, a skeleton in a diving suit with a bullet in his head, and another skeleton—this one belonging to an Asian—wearing the same kind of diving suit. How would they try to solve this mystery? However, he realized right away what was wrong with his line of thinking: there would likely be no humans—let alone archaeologists—left a thousand years from now. Antarctica was a few hours away from a nuclear attack; how many people there would survive?

As he was sitting still there in the darkness, it felt like the time was dragging on endlessly. When Yoshizumi checked his watch, he saw that not even ten minutes had passed since the missiles were launched.

Another thirty-five minutes.

Yoshizumi stood up. He had suddenly remembered the world outside and felt a desire to see the blue sky, the clouds, the sun, the green trees, and those beautiful, empty buildings one more time. With a childlike thrill in his heart, he wanted to walk around through the vacant city, watching as a solitary point of silver in the deep blue sky grew nearer and nearer. For what would almost certainly be the only time in his whole life, he wanted to see with his own eyes the moment when a nuclear missile struck. He didn't know whether he could make it back to the surface by shimmying up the elevator cable, but he figured he might as well



give it a try. On his way to the doorway, however, he tripped slightly over Carter's body, and in that moment the hands folded over the dead man's chest were upset and hit the floor with a soft thump. Yoshizumi, looking at him intently, spoke to him in a soft, gentle voice: "I think I'll stay here after all, Carter." Once more, he folded Carter's hands on his chest. "It would be too lonely for you all alone in this darkness."

After that, he sat back down in the chair again and turned out the light. Bathed in the light of that deathly green lamp, he crouched unmoving and waited.



# EP I L O G U E

RESURRECTION DAY

In spring one year, on a white asphalt road that ran through the region of North America once known long ago as the state of South Carolina, a man walked southward. The man was wearing almost no clothing that was recognizable as such, his hair and beard had grown wild, and ragged strips of cloth were tied around his feet. The man was trudging along a national highway, both sides of which were covered in grass, without so much as a shadow of anything else moving on it for as far as the eye could see.

From time to time, the man would look up at the sun and murmur these words: "I'm going south..."

From time to time, the ruins of huge empty cities would appear along his way, but for some reason the man would not approach them. He usually camped out at night, eating fruit from trees whenever he became hungry. When he discovered a group of some strange species of rodent gathered fearlessly on the road, his actions were slow, but he at last caught one or two of them, cut them open with a large knife, and ate them. When he came to rivers, he would catch some fish after many hours' labor and eat them live. When it rained, he would sleep in ruined buildings by the side of the road. Sometimes he would find canned goods in the buildings, but after staring at them for a long while, he would shake his head sadly and throw them away, seemingly ignorant of how to open them. At one point he wandered into

the cul-de-sac that was Florida, and somehow by the height of summer the man had come to the outskirts of Texas. Here this man who was little more than skin and bones fell ill and suffered for a long time inside a house. When summer ended, the man murmured again: "I'm going south..."

His eyes looked as though they were delirious from fever, the color of sanity in them having faded long ago. Even so, he continued walking.

In winter of that year, he became so sick on the Isthmus of Panama that he nearly died. In the pain that assaulted him he gave free rein to his tears, with nothing save weak gasps escaping his lips.

*"Aah. Aah."*

In the spring of the following year, having somehow managed to cross the Panama Canal, the man was walking along the shore of what had once been called the nation of Colombia. It was there, however, that the long, rusted railways he often tracked ended, and even roads became difficult to recognize. The man lost his way in the Andes, going up again and then down again, and again suffering from illness. Along his way, ghost cities appeared one after another, and though he was greeted by innumerable sun-bleached skeletons, such things seemed not to hold the slightest interest for him. In autumn of the third year, the man stood on a hillside looking down on the great plain of the former Argentina, waving his arms at a flock of birds in flight. "I'm going south!" he shouted. He descended from the hills and stomped his foot on a grass-covered railroad rail. "I have friends in the south!"

The weather grew gradually cooler and finally cold. Yet nevertheless, the man continued walking south.



It was around the time when the ninth year, as counted from the Year of Calamity, was about to dawn. From the long peninsula of iced-over land at the far south, one small, rough, handmade sailboat put to sea and set sail for the north. Most of it had been put together from whatever lumber was on hand. Much of the hull was made of plywood; the rest used plastic boards. It had an auxiliary engine attached that looked like it wouldn't be much use. Fifteen people boarded this boat. By a shocking stroke of luck, it had made it through the rough waves of the Cape Horn Current, and when it reached land, it dropped off seven people and a supply of foodstuffs. Then it turned around and departed for Antarctica once more.

The seven people had a wireless radio with them, and with it they were able to communicate with the peninsula. No sooner had the new year begun than another boat—this one a little better than the first—came and dropped off ten people. The long winter came. Antarctica settled into hibernation, and these seventeen people walked hither and yon across the land.

In December of that year, three boats departed Antarctica and headed for the land. All at once, more than a hundred people made landfall. This little fleet made three round trips, bringing three hundred people to the land. On the third trip, there were young faces of boys and girls among them.

When a group of girls set foot on the shore, a strange figure happened to appear from the shadow of a boulder some ways off from the landing point. Everyone's eyes went wide at the sight of that figure, and they stared at him in surprise. His hair and beard were both grown out as long as was probably possible, and dressed as he was in worn-out llama skins, like a caveman or a native of some undiscovered land, the people who had come from Antarctica were sure that he wasn't one of them.

For a moment, the group of people and the strange, solitary man faced one another. Then from among the group a woman's sharp cry arose.

"That's Yoshizumi!"

The gray-haired old woman who set out running, stumbling toward him was Irma Auric. At that instant, all of the people saw clearly in that gaunt, grimy, bearded face some vestige of one of the four men who had left them seven years ago.

"Yoshizumi. Oh, Yoshizumi!" Irma held the head of the wild-haired, lice-infested man tightly to her bosom and cried out as tears moistened the deep wrinkles in her face. "You're alive...*my son*...it's been six years...and the H-bombs and the germs didn't kill you...Six years, and all the way from Washington..."

The man's dirty face was wet with Irma's tears. His eyes, too, overflowed with tears. Even so, the light that had been lost to them did not return. Instead, he could only cry out like a newborn, with Irma clutching him to her breast.

"*Aaah...aaah...*"



#### HENRI LOUIS DE LA TOUR'S LETTER

Yoshizumi lived. And not only that, he *walked* all the way from Washington, DC, to Rio Gallegos, at the southernmost tip of South America. How on earth did he ever do it? At the White House in Washington, he survived in the middle of that missile strike and then was infected with the *original species* of Linskey nucleic acid bacteria and lived through that as well. It's impossible, but the fact is that he's right here with us now. Irma's been taking care of him day and night and won't leave his side. How in the world was he able to survive? "Could those mutant WA5PS germs I injected him with when we said our adieus on *Nereid* six years ago have had some immunological effect? Those mutant germs had only just been discovered seven years ago; their effect wasn't nearly as powerful as the ones we have now. Still, that's probably what happened. As for the missile, if we assume the one that struck Washington was a neutron bomb, as seventy percent of the ones that fell were, I can understand what must have happened. If he were nine stories underground beneath the White House at the moment the missile hit...he would have avoided being vaporized by the megaton hydrogen bomb, and he wouldn't have been exposed to a deadly dose of radiation either. But as for the mental damage, it may be due to considerable neutron irradiation in his brain. If that's the case, it would be a pity, as he'll have no hope of recovery. And yet in the end, maybe that would be for the best.

Someone who traveled to that land of death for our sake—for Antarctica's sake—who lived filled with anger because he failed to complete his mission—if someone like that were to learn after all that in the end *not a single Soviet missile had been aimed at Antarctica*—what kind of thoughts would assail him? If one thinks it over calmly, the Soviet Union can't have been such an unreasonable nation. It was just—we didn't have so much as a scrap of information, so we were frightened by the phantom of a possibility. Those men who volunteered to go to that dead land and die for the sake of that minute danger, what should we think of them?

Even so, what a bizarre irony that seventy percent of the missiles launched by both sides were neutron bombs! Neutron bombs were nuclear weapons that kill the people without destroying the infrastructure. They'd been called the apotheosis of immoral weaponry. They allow armies to capture strategic facilities and weapons, instead of conquering rubble and ruin. They're 'refined nuclear weapons' that don't create the 'ashes of death' that would envelop the entire world—allied camps included—in the destruction. To think that they would save us from the plague of Linskey nucleic acids that had covered the whole world.

Radiation from the neutron bomb detonations mutated the Linskey nucleic acids. Or to put it differently, in order to make mutants of the host bacteria WA5PS themselves, it was necessary from the start to irradiate them with enough high-energy neutrons to destroy every living thing on Earth. We had a pretty good idea of that much seven years ago. For bacteria to be this resistant to radiation, perhaps it wasn't a terrestrial species at all; maybe it was something originally from outer space. Of course, seventeen or eighteen years ago, bacteria were discovered living inside uranium ore in Yugoslavia, so it might have had a terrestrial origin after all. In either case, if you bombard WA5PS with neutrons, a percentage of the germs that survive will have become de la Tour variants, and the Linksey nucleic acid metamorphic viruses that can be extracted from them by way of a simple stimulus will consume the original strain and the de la Tour variants alike with incredible energy.

With this understanding, I finally created the de la Tour vaccine a few years back (which strictly speaking isn't a vaccine; the replication of mutant germs is being suppressed in equilibrium). In nature, however, high-energy neutrons simply don't exist, so I never imagined that something like this would happen. The de la Tour vaccine is difficult to make, and inoculation is uncertain. Also, there are



practically no animals in Antarctica to experiment on. It took three years to finally make enough for twenty people. How my heart trembled with unease when the first seventeen people inoculated with the de la Tour vaccine departed, heading out to set foot on South American soil for the first time in the decade since the Year of Calamity! And then, according to reports from the first research team by way of wireless, *land-based mammals* had recovered in South America, and even in the air near the soil where WA5PS inorganically replicates, the original strain was not found. Imagine my surprise when I learned that instead, they had only been able to determine the presence of harmless variants that bore an astonishing resemblance to the ones I had made.

But when I think about it, it's all a very stupid story. It does no good to talk about this now, but if I had been thinking just a little, I should have been able to see the analogies to this kind of situation. If I had done that, even though it might surely have been too early to return to the temperate zone—

If there's any time when a large number of high-energy neutrons are released outside the walls of a reactor, it's in the explosion of a nuclear weapon—especially the explosion of a neutron bomb. A neutron bomb releases fourteen to seventeen times as many neutrons as an H-bomb. Extremely fast, of course...If this happened, then WA5PS would be eradicated via neutron irradiation due to thousands of neutron bomb detonations on the continents of both the Old and New World, where human beings had already died out. And with the irradiation of the WA5PS, wouldn't a large number of de la Tour variants be created, unleashing viruses that would consume and destroy the WA5PS? The reproductive power of the de la Tour variants is considerably greater than that of the original strain, so might it not be the ironic case that the new strain at this point drove the original strain of the germ to extinction? It's a common thing for mutants to be stronger than their progenitors. This is all in the realm of analogy, and there's no way whatsoever to confirm it, but if this is true, there's no greater irony.

Why? Although A. Linskey, that great benefactor of Antarctic epidemiology, declined to point it out himself, the idea that WA5PS was originally developed for germ warfare is something frequently suggested by soldiers who heard his broadcast. If this is true, it means that medical science—which was originally created to save people from death and disease—drove our three and a half billion member species to the brink of extinction, and then afterward, nuclear missiles—which

were created for no purpose other than the annihilation of mankind—ironically saved the human race.

If these things are factual, there's no longer anything else left to say. In the face of fate's irony, amid these overwhelmingly bizarre circumstances, I have a bad feeling in my chest, as if all that was solid has melted into air. In the end, humanity was nothing more than a speck of dust that the universe decided to toy with. To human beings, with our short life spans, the history of our prosperity seemed eternal, and our destruction instantaneous. But weren't both of these things like two sides of a single frame of film to the universe at large?

This understanding certainly doesn't render the human spirit powerless. An understanding of the transience of the destinies bestowed on "matter," "nature," and even "space" is oddly enough humanity's most human aspect. Not the things of the vulgar world, but "human existence," which is clearly distinct from the overwhelming "material existence." Does it not make the form of the spirit so much more clear? And when it becomes clear that the human spirit is destined for confrontation with matter and battle against coincidence—when it becomes the common knowledge of the age that the opponents we must face are not our fellow human beings, then that will put an end to every family quarrel between human beings, won't it? And in place of those quarrels, the solidarity we need to confront the material universe will at last be achieved. And wouldn't this put an end to all of humanity's schemes for making others suffer, for hurting them, for killing them, and for returning them to mere matter? At the very least, may this understanding become universal while "the world" still exists!

Is it only through an eternity of harsh trial and error that we can learn anything? I say that now, but perhaps the reason I'm writing these notes now is for that time in the far distant future when humanity will again possess the prosperity it did in the days before the Great Calamity. People easily forget their suffering once it passes. The understanding that has become universal among a handful of Antarcticans we may be able to pass on through several of the generations to come—they'll be living in hard times, after all. However, when a generation comes along that enjoys a lull in these difficulties, the travails of earlier generations will be easily forgotten. When you think about it, we too had gone through this time and again, experiencing a number of terrible wars in the years before the Great Calamity—that superficial battle they called "the war to end all wars" had to be fought a second time, after all.

However, humans can pass on their reminiscences to their descendants and communicate their memories to them. In the hands of someone with talent, vivid facts can be recreated, and through them the understanding of the Antarcticans can be transmitted into the future. This we absolutely must do, so our descendants will not drown themselves in prosperity and vulgarity, lose sight of the lessons of the loss of three and half billion people, and repeat the same foolishness.

Today, at the southern tip of South America, we have our first village—our first city. Now that I think about it, this is the tenth full year since that disaster. Tomorrow, an exploration party including myself will depart northward for the interior. This will be the very first day of the resurrection of humanity in its original birthplace—the Continent of Land—since all humanity, save those exiled to the Continent of Ice, had been wiped out. First day though it may be, it is not yet Resurrection Day. Even among the fauna, humanity has fallen to the state of an overwhelmingly outnumbered species. Its former population of 3.5 billion has dropped to a little more than ten thousand. In order to preserve the race, reproduction takes precedence over all else. Human beings are, for humanity, both the alpha and the omega. If the world of ten years ago could see our societal apparatus putting the preservation and growth of the species first, they'd likely fall over from the shock.

I wonder, however, when humanity's "Resurrection Day" will truly arrive. Though five thousand years of accumulated civilization were wiped out in one fell swoop, we are certainly still in a much more advantageous position than the people of the Paleolithic era were. All of the facilities of the dead world still remain as they were, and we also have our educations. But it will take a terribly long period of time to reclaim the kind of energy and prosperity we had before the Calamity. Even if we can recover the facilities and the machines, the number of people left to run them is insufficient to the point of insignificance. Moreover, all manner of unknown dangers—disease being first and foremost—are lying in wait for us on the road ahead, and as humans increase in number the human heart will also become dangerous again. How long will it take for humanity to again fill the earth as it did in the days before that great disaster?

No, the world we revive must not be like the one before the Great Calamity. We must not resurrect the gods of envy, the gods of hatred and vengeance. But still, we cannot foretell the future. We may have to go on repeating the stochastic workings of this very inefficient process, wherein only after a near-infinite number of clashes

between fellow human beings can that thing we call “intellect” begin to take on the trappings of universal reason. We are the ones who have the first responsibility for making these detours a little shorter.

Tomorrow morning, we head north. We have to breathe life back into the country of the dead. The road north runs far into the distance, and our Resurrection Day is even farther. And the tale of that day does not belong to our generation.



# HAIKASORU

THE FUTURE IS JAPANESE

NEW AND FORTHCOMING

## GENOCIDAL ORGAN

—PROJECT ITOH

The war on terror exploded, literally, the day Sarajevo was destroyed by a homemade nuclear device. The leading democracies transformed into total surveillance states, and the developing world has drowned under a wave of genocides. The mysterious American John Paul seems to be behind the collapse of the world system, and it's up to intelligence agent Clavis Shepherd to track John Paul across the wreckage of civilizations and to find the true heart of darkness—a genocidal organ.

## THE FUTURE IS JAPANESE

—EDITED BY NICK MAMATAS AND MASUMI WASHINGTON

A web browser that threatens to conquer the world. The longest, loneliest railroad on Earth. A North Korean nuke hitting Tokyo, a hollow asteroid full of automated rice paddies, and a specialist in breaking up virtual marriages. And yes, giant robots. These thirteen stories from and about the Land of the Rising Sun run the gamut from fantasy to cyberpunk and will leave you knowing that the future is Japanese!

## SELF-REFERENCE ENGINE

—TOH ENJOE

Toh EnJoe's prize-winning fiction crosses the streams—from hardcore science fiction to bizarre surrealism—and has found an audience across the genre divide. *Self-Reference ENGINE* is a puzzle of a book, where vignette and story and philosophy combine to create a novel designed like a concept album.

ALSO AVAILABLE

## THE OURBOROS WAVE

—JYUJJI HAYASHI

Ninety years from now, a satellite detects a nearby black hole scientists dub Kali for the Hindu goddess of destruction. Humanity embarks on a generations-long project to tap the energy of the black hole and establish colonies on planets across the solar system. Earth and Mars and the moons Europa (Jupiter) and Titania (Uranus) develop radically different societies, with only Kali, that swirling vortex of destruction and creation, and the hated but crucial Artificial Accretion Disk Development association (AADD) in common.

## THE NAVIDAD INCIDENT: THE DOWNFALL OF MATÍAS GUILI

—NATSUKI IKEZAWA

In this sweeping magical-realist epic set in the fictional south sea island republic of Navidad, Ikezawa gives his imagination free rein to reinvent the myths of the twentieth-century Japan. The story takes off as a delegation of Japanese war veterans pays an official visit to the ex-World War II colony, only to see the Japanese flag burst into flames. The following day, the tour bus, and its passengers, simply vanish. The locals exchange absurd rumors—the bus was last seen attending Catholic mass, the bus must have skipped across the lagoon—but the president suspects a covert guerrilla organization is trying to undermine his connections with Japan. Can the real answers to the mystery be found, or will the president have to be content with the surreal answers?

## **HARMONY**

### **-PROJECT ITOH**

In the future, Utopia has finally been achieved thanks to medical nanotechnology and a powerful ethic of social welfare and mutual consideration. This perfect world isn't that perfect though, and three young girls stand up to totalitarian kindness and super-medicine by attempting suicide via starvation. It doesn't work, but one of the girls—Tuan Kirie—grows up to be a member of the World Health Organization. As a crisis threatens the harmony of the new world, Tuan rediscovers another member of her suicide pact, and together they must help save the planet...from itself.

## **YUKIKAZE**

### **-CHŌHEI KAMBAYASHI**

More than thirty years ago a hyper-dimensional passageway suddenly appeared... the first stage of an attempted invasion by an enigmatic alien host. Humanity managed to push the invaders back through the passageway to the strange planet nicknamed "Faery." Now, Second Lieutenant Rei Fukai carries out his missions in the skies over Faery. His only constant companion in this lonely task is his fighter plane, the sentient FFR-31 Super Sylph, call sign: YUKIKAZE.

## **GOOD LUCK, YUKIKAZE**

### **-CHŌHEI KAMBAYASHI**

The alien JAM have been at war with humanity for over thirty years...or have they? Rei Fukai of the FAF's Special Air Force and his intelligent tactical reconnaissance fighter plane Yukikaze have seen endless battles, but after declaring "Humans are unnecessary now," and forcibly ejecting Fukai, Yukikaze is on its own. Is the target of the JAM's hostility really Earth's machines?

## **LOUPS-GAROUS**

### **-NATSUHIKO KYOGOKU**

In the near future, humans will communicate almost exclusively through online networks—face-to-face meetings are rare and the surveillance state nearly all-powerful. So when a serial killer starts slaughtering junior high students, the crackdown is harsh. The killer's latest victim turns out to have been in contact with three young girls: Mio Tsuzuki, a certified prodigy; Hazuki Makino, a quiet but opinionated classmate; and Ayumi Kono, her best friend. And as the girls get caught up in trying to find the killer—who just might be a werewolf—Hazuki learns that there is much more to their monitored communications than meets the eye.

## **TEN BILLION DAYS AND ONE HUNDRED BILLION NIGHTS**

### **-RYU MITSUSE**

Ten billion days—that is how long it will take the philosopher Plato to determine the true systems of the world. One hundred billion nights—that is how far into the future Jesus of Nazareth, Siddhartha, and the demigod Asura will travel to witness the end of all worlds. Named the greatest Japanese science fiction novel of all time, *Ten Billion Days and One Hundred Billion Nights* is an epic eons in the making. Originally published in 1967, the novel was revised by the author in later years and republished in 1973.

## **THE BOOK OF HEROES**

### **-MIYUKI MIYABE**

When her brother Hiroki disappears after a violent altercation with school bullies, Yuriko finds a magical book in his room. The book leads her to another world where she learns that Hiroki has been possessed by a spirit from The Book of Heroes, and that every story ever told has some truth

to it and some horrible lie. With the help of the monk Sky, the dictionary-turned-mouse Aju, and the mysterious Man of Ash, Yuriko has to piece together the mystery of her vanished brother and save the world from the evil King in Yellow.

## **BRAVE STORY**

**-MIYUKI MIYABE**

Young Wataru flees his messed-up life to navigate the magical world of Vision, a land filled with creatures both fierce and friendly. His ultimate destination is the Tower of Destiny where a goddess of fate awaits. Only when he has finished his journey and collected five elusive gemstones will he possess the Demon's Bane—the key that will grant him his most heartfelt wish...the wish to bring his family back together again!

## **ICO: CASTLE IN THE MIST**

**-MIYUKI MIYABE**

A boy with horns, marked for death. A girl who sleeps in a cage of iron. The Castle in the Mist has called for its sacrifice: a horned child, born once a generation. When, on a single night in his thirteenth year, Ico's horns grow long and curved, he knows his time has come. But why does the Castle in the Mist demand this offering, and what will Ico do with the girl imprisoned within the Castle's walls? Delve into the mysteries of Miyuki Miyabe's grand achievement of imagination, inspired by the award-winning game for the PlayStation® 2 computer entertainment system, now remastered for PlayStation® 3.

## **ROCKET GIRLS**

**-HOSUKE NOJIRI**

Yukari Morita is a high school girl on a quest to find her missing father. While searching for him in the Solomon Islands, she receives the offer of a lifetime—she'll get the help she needs to find her father, and all she need do in return is become the world's youngest, lightest astronaut. Yukari and her sister Matsuri, both petite, are the perfect crew for the Solomon Space Association's launches, or will be once they complete their rigorous and sometimes dangerous training.

## **ROCKET GIRLS: THE LAST PLANET**

**-HOSUKE NOJIRI**

When the Rocket Girls accidentally splash down in the pond of Yukari Morita's old school, it looks as though their experiment is ruined. Luckily, the geeky Akane is there to save the day. Fitting the profile—she's intelligent, enthusiastic, and petite—Akane is soon recruited by the Solomon Space Association. Yukari and Akane are then given the biggest Rocket Girl mission yet: to do what NASA astronauts cannot and save a probe headed to the minor planet Pluto and the very edge of the solar system.

## **USURPER OF THE SUN**

**-HOSUKE NOJIRI**

Aki Shiraishi is a high school student working in the astronomy club and one of the few witnesses to an amazing event—someone is building a tower on the planet Mercury. Soon, the enigmatic Builders have constructed a ring around the sun, and the ecology of Earth is threatened by its immense shadow. Aki is inspired to pursue a career in science, and the truth. She must determine the purpose of the ring and the plans of its creators, as the survival of both species—humanity and the alien Builders—hangs in the balance.



## THE LORD OF THE SANDS OF TIME

—ISSUI OGAWA

Sixty-two years after human life on Earth was annihilated by rampaging alien invaders, the enigmatic Messenger O is sent back in time with a mission to unite humanity of past eras—during the Second World War, in ancient Japan, and at the dawn of humanity—to defeat the invasion before it begins. However, in a future shredded by love and genocide, love waits for O. Will O save humanity only to doom himself?

## THE NEXT CONTINENT

—ISSUI OGAWA

The year is 2025 and Gotoba General Construction—a firm that has built structures to survive the Antarctic and the Sahara—has received its most daunting challenge yet. Sennosuke Touenji, the chairman of one of the world's largest leisure conglomerates, wants a moon base fit for civilian use, and he wants his granddaughter Taé to be his eyes and ears on the harsh lunar surface. Taé and Gotoba engineer Aomine head to the moon where adventure, trouble, and perhaps romance await.

## DRAGON SWORD AND WIND CHILD

—NORIKO OGIWARA

The God of Light and the Goddess of Darkness have waged a ruthless war across the land of Toyoashihara for generations. But for fifteen-year-old Saya, the war is far away—until the day she discovers that she is the reincarnation of the Water Maiden and a princess of the Children of the Dark. Raised to love the Light and detest the Dark, Saya must come to terms with her heritage even as the Light and Dark both seek to claim her, for she is the only mortal who can awaken the legendary Dragon Sword, the weapon destined to bring an end to the war. Can Saya make the choice between the Light and Dark, or is she doomed—like all the Water Maidens who came before her...?

## MIRROR SWORD AND SHADOW PRINCE

—NORIKO OGIWARA

When the heir to the empire comes to Mino, the lives of young Oguna and Toko change forever. Oguna is drafted to become a shadow prince, a double trained to take the place of the hunted royal. But soon Oguna is given the Mirror Sword, and his power to wield it threatens the entire nation. Only Toko can stop him, but to do so she needs to gather four magatama, beads with magical powers that can be strung together to form the Misumaru of Death. Toko's journey is one of both adventure and self-discovery, and also brings her face to face with the tragic truth behind Oguna's transformation. A story of two parallel quests, of a pure love tried by the power of fate, the second volume of *Tales of the Magatama* is as thrilling as *Dragon Sword and Wind Child*.

## SUMMER, FIREWORKS AND MY CORPSE

—OTSUICHI

Two short novels, including the title story and *Black Fairy Tale*, plus a bonus short story. *Summer* is a simple story of a nine-year-old girl who dies while on summer vacation. While her youthful killers try to hide her body, she tells us the story—from the point of view of her dead body—of the children's attempt to get away with murder. *Black Fairy Tale* is classic J-horror: a young girl loses an eye in an accident, but receives a transplant. Now she can see again, but what she sees out of her new left eye is the experiences and memories of its previous owner. Its previous *deceased* owner.

## **ZOO**

**-OTSUICHI**

A man receives a photo of his girlfriend every day in the mail...so that he can keep track of her body's decomposition. A deathtrap that takes a week to kill its victims. Haunted parks and airplanes held in the sky by the power of belief. These are just a few of the stories by Otsuichi, Japan's master of dark fantasy.

## **ALL YOU NEED IS KILL**

**-HIROSHI SAKURAZAKA**

When the alien Mimics invade, Keiji Kiriya is just one of many recruits shoved into a suit of battle armor called a Jacket and sent out to kill. Keiji dies on the battlefield, only to be reborn each morning to fight and die again and again. On his 158th iteration, he gets a message from a mysterious ally—the female soldier known as the Full Metal Bitch. Is she the key to Keiji's escape or his final death?

## **SLUM ONLINE**

**-HIROSHI SAKURAZAKA**

Etsuro Sakagami is a college freshman who feels uncomfortable in reality, but when he logs onto the combat MMO *Versus Town*, he becomes "Tetsuo," a karate champ on his way to becoming the most powerful martial artist around. While his relationship with new classmate Fumiko goes nowhere, Etsuro spends his days and nights online in search of the invincible fighter Ganker Jack. Drifting between the virtual and the real, will Etsuro ever be ready to face his most formidable opponent?

## **BATTLE ROYALE: THE NOVEL**

**-KOSHUN TAKAMI**

Koushun Takami's notorious high-octane thriller envisions a nightmare scenario: a class of junior high school students is taken to a deserted island where, as part of a ruthless authoritarian program, they are provided arms and forced to kill until only one survivor is left standing. Criticized as violent exploitation when first published in Japan—where it became a runaway best seller—*Battle Royale* is a *Lord of the Flies* for the twenty-first century, a potent allegory of what it means to be young and (barely) alive in a dog-eat-dog world.

## **MARDOCK SCRAMBLE**

**-TOW UBUKATA**

*Why me?* It was to be the last thought a young prostitute, Rune-Balot, would ever have...as a human anyway. Taken in by a devious gambler named Shell, she became a slave to his cruel desires and would have been killed by his hand if not for the self-aware Universal Tool (and little yellow mouse) known as Oeufcoque. Now a cyborg, Balot is not only nigh invulnerable, but has the ability to disrupt electrical systems of all sorts. But even these powers may not be enough for Balot to deal with Shell, who offloads his memories to remain above the law, the immense assassin Dimsdale-Boiled, or the neon-noir streets of Mardock City itself.

## **THE CAGE OF ZEUS**

**-SAYURI UEDA**

The Rounds are humans with the sex organs of both genders. Artificially created to test the limits of the human body in space, they are now a minority, despised and hunted by the terrorist group

the Vessel of Life. Aboard Jupiter-I, a space station orbiting the gas giant that shares its name, the Rounds have created their own society with a radically different view of gender and of life itself. Security chief Shiroasaki keeps the peace between the Rounds and the typically gendered “Mon-aurals,” but when a terrorist strike hits the station, the balance of power is at risk...and an entire people is targeted for genocide.

## **MMS**

**-HIROSHI YAMAMOTO**

Japan is beset by natural disasters all the time: typhoons, earthquakes, and...giant monster attacks. A special anti-monster unit called the Meteorological Agency Monsterological Measures Department (MMD) has been formed to deal with natural disasters of high “monster magnitude.” The work is challenging, the public is hostile, and the monsters are hungry, but the MMD crew has science, teamwork...and a legendary secret weapon on their side. Together, they can save Japan, and the universe!

## **THE STORY OF IBIS**

**-HIROSHI YAMAMOTO**

In a world where humans are a minority and androids have created their own civilization, a wandering storyteller meets the beautiful android Ibis. She tells him seven stories of human/android interaction in order to reveal the secret behind humanity’s fall. The tales that Ibis tells are science fiction stories about the events surrounding the development of artificial intelligence (AI) in the twentieth and twenty-first centuries. At a glance, these stories do not appear to have any sort of connection, but what is the true meaning behind them? What are Ibis’s real intentions?

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