

Khimky Nights

by
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Leonid Cherniavsky turned his old Fiat into the dingy concrete building's parking area and took his reserved space, next to two big black Volgas. The contrast was startling, almost comical, but he no longer noticed. As head of the Rocket Engine Department of NPO Energomash, he was entitled to the use of one of the limousines, and a driver as well, and he had tolerated that perquisite for a time, but he had never been comfortable with it. And if his peers resented him for putting one of their perks at risk, so be it; his staff loved him for it. All he was giving up was status; the money saved could hire another engineer. And besides, he *liked* his foreign car. He liked its computer-controlled engine and brakes; he liked fiddling with it, cleaning it, coddling it, but most of all, he liked driving it.

He turned the key off and gave the brake handle a firm tug—exactly three clicks. Then he shifted his old leather briefcase from the passenger seat onto his lap, and paused for a moment before unlatching the door, smiling to himself. This is as it should be, he thought, his old car showing no sign of its age, his even older briefcase, a gift from an American colleague, looking finer than when it was new. He was 70 years old, and today he felt good about himself.

Cherniavsky swung both his feet to the cracked pavement and pulled

himself fully erect, stretching muscles that had suffered from long disuse. He took a deep breath of the cold autumn air and vowed to start exercising. He was a stocky man, but less so than the average Russian over forty, and his black wool overcoat was tailored to make him look fit. His fur hat covered a full head of hair, which remarkably still retained some of its color. His only unhappy thought as he walked to the side door was that his wife had not lived to see the passing of the century, and would not be able to help him enjoy his retirement. But she had been gone for eight years now, and the thought passed as the guard greeted him at the entrance. Cherniavsky noticed the extra attention the guard seemed to be paying him and again smiled to himself. Maybe his gait was a little more lively, or his expression a little more cheerful. Whatever it was, he decided, it was good that it showed.

The lobby was empty except for the head of security, who greeted him politely by name. He, too, seemed to be showing unusual interest. Cherniavsky said good afternoon, pushed the button for the lift, and asked the man how he was. The security man didn't return his smile.

"Did you hear about the accident at the station?" the man asked expectantly.

Cherniavsky's face went blank. "No." His response both answered the question and expressed his shock, and he subconsciously removed his hat, as if it

had been shielding him from this new and horrible information. "What happened? I've just come from a meeting in Moscow." His last comment was added almost as an apology for his ignorance.

The security man could only repeat the sketchy rumor circulating in the building: there had been an accident at the space station and maybe a cosmonaut had been lost. Cherniavsky looked up above the elevator door to the blackened metal hand of the floor indicator, slowly winding its way around the dial. Too slowly. He looked around the lobby again—still empty. "Do you know when it happened?" he asked. The security man shook his head. Finally the door opened and he hurried into the car and pushed the button for the twelfth floor. It was the top floor and the lift was as old as the building; the noise of the motor and cables was clearly audible as the floors passed by at their customary leisurely pace. Cherniavsky's mind started to speculate.

The first sections of the station had already been in orbit for more than twenty years. A larger replacement had been proposed and designed more than ten years before, but just as with the building's antiquated lifts, there had been no money to upgrade. The station had become a maze of add-on modules, the supporting systems a hodgepodge of old and new wiring and plumbing—only the veteran cosmonauts could tell you what worked and what didn't, and even they had trouble sometimes. With so much waiting to go wrong, they were lucky

there were not more accidents.

And if the hardware was not enough of a worry, on-board morale was getting to be a problem, what with all the construction going on for the Mars mission, the different crews showing up, not just on Soyuz, but on the American and European shuttles as well. Most of them were not trained cosmonauts these days, but technicians and managers, arriving like hotel guests and expecting the same amenities. It was a bad situation. The cosmonauts responsible for the station's day-to-day operations were starting to complain about having to clean up after the "insolent interlopers." Bad morale, Cherniavsky knew, meant carelessness, negligence, or even sabotage.

Or it could have just been a bit of space junk, traveling a few thousand kilometers per hour, blasting a hole through the station. There had already been two incidents, but the particles had been tiny, and nothing vital had been struck. A dangerous place to live.

It wasn't until the creaky lift had reached the ninth floor that he realized maybe it wasn't the station at all; it could just as easily have been Daedalus, docked at the station. Daedalus was the transfer vehicle that would take man to Mars, and NPO Energomash was building its nuclear thermal engines. Leonid Cherniavsky in one moment felt very tired, and very old. If it was the engines, he would be responsible. He strained his mind for an

explanation. No critical test had been scheduled; the start-up sequence was still three weeks away. The uranium pellets had been loaded, certainly, but they were not to be activated until the slush hydrogen fuel system had been checked out. His early doubts about the design rushed back. It was nothing specific, just a feeling in his gut. He was worried, and the slowness of the lift was not helping. The car finally came to an abrupt halt, bobbing a moment before the door started to move; Cherniavsky pushed his way out into the hall before it was half open.

His peripheral vision told him everything. Nobody was working; they were gathered in tight clusters, probably speculating as he had, probably generating new rumors. He parried their queries with disclaimers, not really paying attention. They had no news.

He took the corner into his outer office at full gallop, his eyes already on the spot his secretary would be, words already formed in his mind. But she already knew—knew the sound of his walk, knew what the sound of *this* walk meant. Her face told Cherniavsky she had urgent business with him, but he exercised his right of domain by speaking first. "Get Semenov for me, Anna. Right away."

She instinctively closed her hand over the mouthpiece. "Mr. Briard from ESA is on the line for you," she replied directly. "He called just before you walked in." Anna's voice carried just the right amount of urgency, a tone that

didn't presume to set Cherniavsky's priorities for him, but which left him no real option. Briard was Cherniavsky's counterpart at the European Space Agency, one of the executives on the Daedalus project—one of the people who controlled the funding.

"All right," agreed Cherniavsky, with some resignation. The timing couldn't have been worse. But he had known Briard for some years now, and knew the Frenchman would understand. He took the call in his cluttered office, speaking to Briard in perfectly fluent, idiomatic English. The call took only three minutes, then he returned to the outer office.

"He wanted to know what was going on," he said in one long sigh. "He said communications coming out of Baikonur had been cut off. He said the last he heard from the station was that they were running systems tests, then a problem developed with the reactor control system—they couldn't maintain temperature. They undocked as a precautionary measure. A French cosmonaut went out on an EVA to check the engine module; there were two others in the Daedalus control module, a Russian and a Frenchman. Then communications from both the station and Daedalus were lost. Everything. I've got to find out what happened. Did you get Semenov?"

"No," she said, finishing a shorthand transcription of what Cherniavsky had just told her. "I was going to tell you. I've been trying to find

him for some time now, but nobody knows where he is."

"What do you mean, nobody? Surely *somebody*."

Anna shook her head. "Apparently he left his office right after he heard about the accident. General Meretskov was trying to reach him also. He called here and wanted to see if you knew where he was; that's when I started looking for him. Also, General Meretskov asked that you call him as soon as you got in."

Cherniavsky hesitated a moment before giving her an answer; it was never a good idea to brief one of your bosses when there was a good chance he knew more than you. "All right," he agreed, "but first put a call through to Baikonur. Try Snegov first. If he's not there, then anyone who can tell me something." Cherniavsky hurried back into his office, then shook his head at his haste. A useless gesture, he thought, since there was nothing to do there except to pace.

It took three minutes before Anna had Snegov on the line. What he learned from Snegov was not encouraging. The reactor had heated up so quickly the two cosmonauts on board feared a meltdown and opened the throttle, feeding the half-frozen hydrogen across the uranium pellets to cool them, turning on the engines in the process. Fortunately they had already undocked, but an umbilical was still attached. Snegov guessed the umbilical must have put

the station into a tumble and made Daedalus veer off before it broke away. They were tracking both vehicles on ground radar, but communications had not been reestablished, and they could only guess what happened to the cosmonaut on the EVA. All they knew about the Daedalus crew was that their course had changed several times in a seemingly methodical pattern. They were in an increasingly large orbital spiral, their acceleration undiminished. The cosmodrome staff was checking to see who could launch a rescue mission for the station crew, if it came to that. As far as a rescue of the two on Daedalus, if they didn't manage to stop the engines soon, they would reach escape velocity. After that, they were on their own.

A very sober Cherniavsky quickly related this information to his secretary, then asked her to call Meretskov for him, and to also get him a ticket on the next plane to Baikonur. He didn't like being a spectator, and there was nothing he could do from Khimky.

His conversation with Meretskov was perplexing. The General only wanted to know the whereabouts of Semenov, and cut Cherniavsky off when he started to discuss systems diagnostics procedures and his plan to establish a crisis management team to deal with the emergency. Even the status report fresh from Baikonur was rejected. The call took barely a minute. He hung up the handset and walked back to the outer office, his pace noticeably more weary.

"Did you get the ticket yet?" His tone was apologetic; he knew Anna was frighteningly efficient.

"Yes, it's all taken care of," she replied suspiciously. "Six o'clock flight."

Cherniavsky took a breath. "Sorry. Meretskov told me to stay in Khimky—said he needed me here, close to Moscow, in case something came up." Cherniavsky thought Lt. General Vladimir Meretskov was something of an anachronism, a holdover from the days when the state controlled every facet of industrial production. Meretskov was officially the deputy head of the Ministry of General Machine Building, under which NPO Energomash fell, but he was its de facto head as far as space production was concerned, since military programs still accounted for more than half of its funds. Cherniavsky gave Meretskov the respect and cooperation his position demanded, but beyond that, he tried his best to ignore him.

For now he accepted Anna's empathic nod and moved back into his office, closing his door, not for his privacy, but so Anna could spread the news about the accident to his staff without feeling self-conscious. He stared blankly at his big leather chair for a few moments, an icon of power and responsibility, but he had never felt less in control in all of his career. Now all the chair represented was what it was, a soft perch for a tired body. He sank into its cushions and closed his eyes.

Leonid Cherniavsky's thoughts drifted, took him back through a career spanning close to fifty years, back to what now seemed to be another life. He was once a rocket engineer, and was still one at heart. He still liked to tell people he built engines for trucks and not for race cars, paying attention to the details, building in reliability. And because he had been such a good engineer, he was made an executive. He now had to rely on others to tell him what was happening in the design offices and test labs. The change had been gradual, one promotion after another, always times for celebration, never for reflection. Daedalus was to be his last hurrah, and the gold watch would then be his.

But now more immediate thoughts intruded: the nuclear thermal engines on the back end of Daedalus—*his* engines. Everyone called them that, but they weren't, not really. Nuclear thermal engines merely heated hydrogen and shot it out the rocket nozzle. He had argued for a more robust, more efficient design: nuclear *electric*. He reveled in its elegance—high specific impulse, electrostatic argon plasma ion thrusters, a system that could take them beyond Mars to the outer planets. But their thrust was too low; they needed more development work, another few years. It might as well have been twenty.

The whole program was built around a projected mass for the transfer vehicle. Lower thrust would mean a lower speed and a longer round trip, which would mean a requirement for more life support equipment, which would mean

still more mass, and a still lower speed. A delivery delay in the propulsion system would throw off the schedules of hundreds of contractors from nine countries building other components for the European-led consortium. If NPO Energomash couldn't satisfy the requirements, then there were two American teams who said they could. Maybe if funding had been no limit . . . , but wishing for the old days would never get them to Mars.

And so Ilya Semenov had won, and Daedalus was powered with high thrust nuclear thermal engines. The five ton particle bed reactor heated slush hydrogen to 3000°K and exhausted the high energy gas through a pair of gimbaled carbon-carbon nozzles. Never mind that the design was inherently unstable, that the uranium-carbon pellets had to be individually coated with zirconium-carbide to prevent a disastrous reaction with the hydrogen fuel, and that technical and political problems with a similar design had effectively crippled the American Mars initiative. Ilya Semenov had argued that those concerns were either trivial or irrelevant. Semenov had championed the nuclear thermal engines, Cherniavsky thought, for all the wrong reasons—not because they were the best, but because they were the most expedient.

Semenov was the Daedalus engine program manager, reporting directly to Cherniavsky. The two of them had been best friends since they were six, growing up in Leningrad; they survived the wartime siege with their dreams

of building rockets like the V-2 for the motherland. Ten years later Cherniavsky graduated first in their class at Moscow University's engineering school; Semenov graduated only seventh because of his fondness for chasing the girls. They started work at NPO Energomash the next day, with Semenov predicting that Cherniavski would rise to be chief designer.

But as they rose through the ranks, it was always Semenov who had his eyes on the top floor, and when he arrived, he delighted in it—the status, the executive perks, the wheeling and dealing, the rubbing of elbows with the high mucky-mucks and the weekend trips to the NPO dacha to shoot grouse. He no longer wanted to be bothered with engineering details, and that was a source of frustration for Cherniavsky. He either got those details from Semenov, or he didn't get them at all.

There was something else. The politically ambitious Semenov had cultivated some sort of special arrangement with Meretskov, the exact nature of which Cherniavsky had never been able to figure out, but which now seemed to be bubbling to the surface. What if elements of the engine design had been stolen by the GRU and handed over to Semenov in return for something? A promise? Was there a deal? These were possibilities Cherniavsky could not dismiss, knowing Meretskov and Semenov both as much and as little as he did. In the meantime, his staff could take care of itself and would do well in the crisis;

they would save the station and Daedalus if they could be saved at all. The most important thing for *him* to do now was to find Semenov—before Meretskov did—and to do that, he had to start *thinking* like his old friend.

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Cherniavsky turned up the heater in his car. The day had been a long one, and Semenov had not shown himself. It was October, the stars were beginning to show themselves, and the temperature was dropping rapidly. The road to the dacha was narrow and gravel, but there were no other cars, and Cherniavsky drove faster than was his practice. He would reach the dacha in maybe five minutes, ten at most. It was a relatively modest structure, more of a rustic hunting lodge than anything else, and in a sorry state after years of neglect—rubles for frills were hard to come by these days. The dacha had electricity, most of the time, but no telephone. As the last curve gave way, Cherniavsky could see Semenov's car parked in front, but the house was dark. He took a flashlight from the glovebox and hurried to the front door, calling out. When nobody answered, he followed the path around back and across the clearing, playing the light on the ground as he went. The walk took almost a full minute. When he was close enough to what he was looking for, he raised the light.

"Ilya?" He knew the man propped up on the comfortable wooden bench was Semenov; he was only asking as a way of announcing himself,

although since the bench was facing the dacha, he knew Semenov must have seen him coming.

"Oh, Leonid, it is you. I thought it might be." Semenov's glum words were slurred a bit. Cherniavsky flashed his light across the bench—a mostly empty bottle of Stolichnaya sat close by Semenov's side.

Cherniavsky leaned closer to Semenov, and shined the light in his face for a few seconds, studying his expression. "Are you all right, Ilya?" Semenov was thinner than Cherniavsky, his face sharper. He wasn't wearing a hat—his hair was white and neatly trimmed, combed back away from his face. His eyes were framed by large fashionable glasses and showed a trace of red; Cherniavsky thought he had been sobbing and switched off the light.

"Yes, quite all right," Semenov replied. "I just needed to be alone for awhile."

Cherniavsky straightened a bit, almost drawing back.

"Oh, but no," Semenov added. "I am glad that you came. Please, sit down."

Cherniavsky turned and lowered himself to the bench.

"Drink?" Semenov offered the bottle.

Cherniavsky accepted silently and filled his mouth with the cold liquid. The day had drained him. He was more than content to sit in the dark

and drink vodka with his old friend, not yet ready to begin the unpleasant business of the engines. He let his mind drift for five minutes, then swallowed another mouthful of the vodka. "They have reestablished communications with the station," he said quietly, when the vodka had settled in his stomach. Then he told him about the sudden separation, confirmed late in the afternoon by a frightened Russian cosmonaut, and about the station's tumble, and the miraculous recovery of the French cosmonaut stranded outside the whole time.

"And Daedalus?" asked Semenov, in a tone that held no hope for its survival, or his. He was facing straight ahead.

"They are talking to them, as well," said Cherniavsky, as if it was to be expected, although he knew they had been very lucky.

Semenov swiveled his head around, so he would not miss the next words, although it wouldn't have made any difference—there was no wind in the dark cold woods, and no sound either, but for Cherniavsky's voice.

"They are okay, for now. They have food, water, power, oxygen. They have steering control. All of the other systems are working perfectly, except for the reactor control system. The engines were still on when I left." Cherniavsky knew Semenov could figure out for himself what that meant, and waited for a response. Semenov only resumed his stare, and after half a minute, Cherniavsky added the last bit of information he knew. "They are thinking about swinging

around the moon." It was another statement not requiring elaboration; the maneuver had been planned as the third test flight and the navigational data had already been loaded in the Daedalus computers. The only new complication was speed; if the engine problem couldn't be fixed, they would have to come dangerously close to the moon's surface or its weak gravitational pull wouldn't swing them all the way around toward Earth. They both knew the margin for error was extremely slim, maybe too slim: off a bit one way and they would crash on the back side of the moon; a bit off the other way and their deaths would be much slower.

Cherniavsky decided the time was as good as any to raise his real concern. "Meretskov has been calling you."

"I'm not surprised."

Cherniavsky hesitated for a few seconds; Semenov's simple answer had not provided the explanation he was after. "He wouldn't tell me what it was about. Any ideas?"

Semenov slowly turned his head toward Cherniavsky, then shrugged. "I suspect it's something to do with the accident," he said coolly. "Don't you think?"

"That's not very helpful, Ilya." Cherniavsky was growing impatient with Semenov, technically his subordinate, and was now making no attempt to

hide his agitation. "I've allowed you to make your own arrangements with Moscow. I haven't pressed. I've given you that much. Now it's your turn to give some. This is important. I need to know what's going on, and I think you can tell me."

"Do you?" scoffed Semenov. "Such an important man, and so naive." He stopped to shake his head. "There is no mystery here, Leonid. No state secrets, no back room deals. Just mind games. Prestige. Petty politics."

Cherniavsky dismissed the comment about his naivete as absurd, and dismissed as well Semenov's explanation. But if Semenov wanted to make a game of it, well, he could play. "There is a problem with the engines, is there not?"

Semenov hesitated a split second, then tightened his face and nodded agreement.

"The problem is the same one you told me had been corrected two years ago?"

Another nod. "Yes."

"And Meretskov knew there was still a problem?"

This time Semenov shook his head. "No."

Cherniavsky pressed his back against the bench, his line of reasoning upset. Semenov seemed to be answering truthfully, but his answer didn't make

sense to him. "Well, he *did* know about the problem."

Semenov shook his head again. "No. He made it clear there were to be no problems. He made it clear that was what he wanted to hear, and that is what he would be telling his bosses. So that's what I told him, and there was no choice but to also tell you the same thing. You could not have told the bosses there was a problem after Meretskov had already told them there was not."

Cherniavsky was at a loss. "That's absurd!"

"Maybe so, Leonid, but that's all there is to it." Semenov's tone was conciliatory, almost apologetic. "I tell him what he wants to hear, and the rubles keep coming in to the program."

"There *has* to be more," Cherniavsky insisted. "Why won't Meretskov talk to anyone but you?"

"I'm afraid Vladimir Meretskov is not a very bright man. And he is still living in the past." Semenov looked down at his gloved hands for a moment, drifting into a passive consciousness. "If only we were," he added softly.

Cherniavsky's anger was subsiding, but he was not ready to let Semenov loose, not until he understood. "You're talking in riddles again. What are you saying, Ilya?"

Semenov took the bottle from Cherniavsky and shook it—it was empty. "It was my fault, my responsibility. All of this," he said, looking up at the

stars. "Meretskov, I would guess, wants it to be an accident, a chance collision with fate. He needs the blame to be elsewhere."

"But it *was* an accident, wasn't it?"

"We could have been luckier, but it was not entirely unforeseeable."

"But you said the problem had been corrected."

Semenov sighed, then shrugged. "We changed the tests. The new tests were okay. The alternative would have set back the schedule for at least a year. That was not news Meretskov wanted to hear."

"How could you do that?"

"At the time," Semenov calmly explained, "the other options were immediately disagreeable for everyone involved—you, me, the company, the motherland, even the Europeans. Everything was tied into the schedule."

"But what does Meretskov want with you?" Cherniavsky repeated.

"I told you. He wants the blame to be somewhere else. The French cosmonaut on Daedalus would be convenient. But he doesn't know enough to create a plausible theory. That's why he wants me. He knows you wouldn't cooperate. Maybe he wants something else. I'm just guessing."

Semenov's lecture was beginning to sink in. Cherniavsky shuffled the pieces in his head, compared them with his memory of the past. What was emerging was shock and anger, but he knew it is too late for that. This was not

the Semenov he used to know, or maybe it was; maybe he should have found the time and made the effort to stay close. Perhaps he should have been a more demanding manager, reining Semenov in from his headlong rushes toward shaky schedule milestones. Maybe their past *had* affected his judgment. Maybe he *had* been naive. Had his faith in Semenov been misplaced, or had his old partner changed? Chasing the perks of senior management he could understand, but this?

His stare into the night gradually focused on the shades of black and charcoal that were the trees, and he turned to look at Semenov, eyes shut, breathing slowly. He looked to be asleep. Cherniavsky spoke quietly, just above a whisper, a question to himself. "Ilya, why did you do it?" He closed his own eyes and was letting his mind go blank when he heard Semenov's voice.

"It was all around you, Leonid. All you had to do was look."

Semenov's passive monotone had given way to some emotion, some bitterness. "I did what we were taught to do: to serve our country, to obey our superiors, to fit in, to be a 'team' player as the Americans say, not to rock the boat, so I could live comfortably, so that my retirement would be pleasant. We are old men, Leonid. It is not like when we were young. Back then we did not have to worry about making budgets fit, about cutting salaries and laying off workers. We didn't have to worry about political back stabbing or about men like Meretskov.

We didn't have to worry about international images. It wasn't the company you kept, but the work you did that was important. And if something went wrong, it wasn't a personal affront, it was expected." Semenov took a slow breath. "Maybe you haven't felt any of that, but I have."

Cherniavsky didn't answer right away. Semenov's words mirrored his own thoughts, and that was a revelation. Until now, he had presumed Semenov was different. "I thought you liked that sort of responsibility," he finally said.

Semenov gathered his thoughts, saying nothing for a few seconds. "In the beginning, I did. It was the image. That was it. Being close to power. You got caught up in it, being close, but never quite there. You did things to stay in favor. I did things. It wasn't just me who was doing it. And when I made the first reports, they weren't really false; they maybe just omitted some little bit of bad news, nothing that would have an effect on the program, but the next report had to follow, and it happened a little at a time, and each time I could rationalize it away, could forget, until at last the gap was too big, and then I just hoped it would all work, convinced myself, denied there ever was a real problem. . . . It was the vacuum."

"The vacuum?"

Semenov looked up, seemingly startled. "Yes. In space. The early tests—the ones that failed—we ran in a vacuum." Semenov stared awhile before

talking again. "I suppose I was too proud, too afraid. Now it's over. There is nothing left for me to do. That is why I came up here, just like the old days. Do you remember? We came out here on clear nights and looked at the moon and the stars, and dreamed about traveling to them, about making it happen."

"Yes, I remember. And our dreams came true. We have done it, Ilya, and we are still doing it, and you should be happy about that."

Semenov shook his head. "No, it is not us anymore. It is the younger people now, like we were. We were only twenty-five when sputnik went up, you know. Children, really."

Cherniavsky remembered. The emotions were very strong. It was the most exciting time of his life. They were number one in the world then; they were heros.

"Now we are just two old men sitting out in the country," Semenov continued, reminiscing. "The excitement still goes on, but it is somewhere else, and no one is missing us, except perhaps General Meretskov, because he also belongs to the past. The young people, they are all doing their jobs now, concentrating, their minds alive with energy and new thoughts, trying to save Daedalus. . . My job is to take the blame, and that I can do perfectly well sitting here looking at the moon and getting soused. They will say we had our chance and were not up to it, and the Europeans will give the contract for the next phase

to the Americans."

Cherniavsky wasn't buying Semenov's pessimism. The thrills, perhaps, were gone, but not the adventure. Semenov's last statement irked him, and he scoffed at it. "Yes, take the blame, but take the credit as well. This is just a setback. The Americans have certainly had their share of setbacks, as have the Europeans. And so have we. This won't be the first time, and we're still here. It happens in all programs. We'll analyze the problem and fix it, and be wiser for it. There will be a delay, but the program will go on as before. You'll see."

Semenov shook his head. "No. It's not the same any more. It used to be that countries—*governments*—competed in space. Now it's the private companies."

"I know that. But the Europeans are reasonable. They know our people, our facilities; they are not going to change this far along."

"That was not my point, Leonid. It is not the Europeans I am worried about; it is the Russians. Meretskov *thinks* it is still the governments."

Cherniavsky shook his head and stood up. He was now convinced there was no real problem. "I am getting cold, Ilya, and tomorrow I expect will be a very busy day. There will be time to worry about Meretskov. Are you coming?"

Semenov responded by reluctantly getting to his feet, and they started

walking, Cherniavsky's light once again showing the way. Neither spoke until they reached the cars.

"Thank you for coming to see me," said Semenov. "It's been a long time. Too long."

"I have set a meeting for nine o'clock tomorrow morning, Ilya."

Cherniavsky's voice was all business. "I expect you to be there. No more vodka tonight."

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Leonid Cherniavsky's flat looked much the same as it had when he moved in fifteen years earlier, and since his wife died, nothing had changed at all. He had always left the decorating to Misha; now he hired a woman to come in once a week to clean. The building was relatively new, originally constructed for senior managers and Party officials, so at least the walls were not crumbling, and the lobby was kept clean and free of vagrants. Ilya Semenov lived in the same building, but on a lower floor. It was the first time in three years he had been up to Cherniavsky's flat. It had not always been that way; for at least twenty years it had been Misha's standing joke that when she married Leonid, she got Ilya in the bargain.

"I didn't know you could cook," Semenov remarked idly. He had taken his suit coat off and loosened his tie, and was sitting at a table in the kitchen

sipping vodka from a small glass.

Cherniavsky was similarly dressed, but with a heavy white apron hung from his neck and tied around his waist. He was at the sink enthusiastically washing vegetables. He ignored Semenov's sullen tone and spoke cheerily, for he was in a good mood, all things considered. "I've learned a lot since Misha died. I got tired of eating out every night, and bought some cook books." He turned toward Semenov and pointed to a shelf next to the table. "It was good therapy," he added softly, thinking about his wife. "Do you cook?"

"I can manage when I have to," Semenov replied. "I have a microwave."

"Oh! Do you like it? Where did you get it?"

"Yes, it's convenient for leftovers. I brought it back from Berlin, about a year ago."

"I'll have to come see it. Do you want to eat in the dining room, or is this all right?"

"This is good."

"Will you set the table then? It will be about ten more minutes."

Cherniavsky waited until Semenov was busy with that task before continuing. "I thought things went very well today, didn't you?"

Semenov looked at him for a moment, then shook his head. "It isn't

good, Leonid. Not for you. Not for me."

Cherniavsky frowned. "But we seem to have found a work-around for the engine control, and Daedalus is on course and not accelerating any more. The Europeans seem to be satisfied with the way things are going. Marcel was even smiling at the end."

"He always smiles. The problem has not gone away."

"There is still a problem, certainly, but it is under control and no lives will be lost. Daedalus will be recovered intact." Cherniavsky raised his glass.

"That is something to toast? No?"

Semenov silently touched his glass to Cherniavsky's, then swallowed the last of the vodka in one gulp. "You should not have spoken so freely about our mistakes, Leonid," he said, leaning back in his chair, "and you should not have allowed the engineers to do the same."

Cherniavsky's face reddened; he started lecturing. "There was no one in the room except our colleagues and partners. They have a right to know. It's mostly their money, after all. We have been working together for years; we would have lost all credibility if we had not suggested likely problem areas. And more important, we would not have been able to develop a solution. Did you want us to obstruct the discussions, to stand by and watch while Daedalus was lost?" He paused for a moment. "I know you better than that." He wasn't

actually sure he knew what Semenov was thinking, but hoped his challenge would sway him.

Semenov's expression remained unchanged. "I talked to Meretskov after the meeting, or rather I should say he talked to me."

"Oh, you're worried about the General again?" Cherniavsky shot back scornfully, clearly agitated. "I wouldn't pay any attention to him. He gets paid to harass people."

"Well, you needn't worry about that. I don't think he has much interest in talking to me anymore. He wanted to avoid the investigation altogether, but it's already started. He didn't want any of the communications from Daedalus reaching the Europeans, not without the messages first being 'interpreted,' but the Frenchman talked to them directly. So we're out of the loop now, my friend." Semenov looked up from his empty glass and met Cherniavsky's icy stare. "But of course I agree the right thing for the company to do is to cooperate."

"The *right* thing for the company to do is to *lead* the investigation, to welcome all the help the Europeans and the Americans can give us, but *we* must take charge. *We* must fix the engines."

Semenov smiled for the first time. "You remind me of someone I once knew—a very good friend of mine." Then his smile vanished. "Yes, we must do the right thing, but we still *need* General Meretskov."

Cherniavsky was dumbfounded by Semenov's continued obsession with Meretskov. "Ilya! Meretskov has no reason to be upset. The Mars mission could not survive without the Energia booster to take subassemblies into orbit, and no one can match our nuclear propulsion expertise. This one problem is not going to hurt the company that much."

"It's not NPO Energomash I'm worried about right now. It's you and me. There is a difference. I know it seems like we're the same, after all these years, but the company can go on without us."

"Sure it can, but we are still valuable," Cherniavsky argued. "We have reputations and friends all over the world. Didn't you see that today?"

Cherniavsky was becoming impassioned. "Meretskov has limits on what he can do, the same as the rest of us. What matters is what we can contribute. Didn't you feel the energy today? And we made it happen—the two of us!"

Semenov stared at his glass for awhile, then looked up at Cherniavsky. "Maybe you're right, Leonid. The meeting did go well today. For awhile I almost forgot about Meretskov." Semenov managed another strained smile. "Maybe he is just venting his frustration. Maybe it will pass."

"Of course it will," Cherniavsky declared, sensing that Semenov was not quite convinced. "But the food is ready, and I want to hear more about your microwave."

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Leonid Cherniavsky worked the gears of the Fiat as he made his way through the evening traffic toward the outskirts of Khimky, a repeat of the trip he had made just five days before. It was the sort of night better spent home with a good book, but Semenov was missing again. This time he knew why. The day had been dismal on all accounts. A gray overcast had not let up; the temperature barely rose above freezing. And now it was snowing—the first snowfall of the season. The notice of his retirement had arrived at three o'clock, and he assumed Semenov had received the same.

Apparently Meretskov had more influence than he had imagined; a friend of his on the inside had let him know the decision had been made on the day after the accident. The paperwork had been held up only until the fate of the cosmonauts was known. Had they been lost, he was discreetly informed, he would have been facing criminal charges. The good news was the cosmonauts were going to be okay. But the revelations of the inadequately tested design had proved embarrassing to Meretskov—that and the public shrieking from the usual anti-nuclear critics, Russian and Western, who had seized on the accident to renew their attack on the Mars initiative. Meretskov was taking some heat from above, and apparently not feeling very forgiving about it. There was never any genuine threat to the program, however, and the engines on Daedalus were again

under control, so Cherniavsky at first could not believe they were retiring him.

The shock had worn off quickly. He would have retired within a year anyway, Cherniavsky told himself, and he started getting used to the idea. He could keep a finger in the pie through his professional associations, maybe do some writing. But then his inside friend had sadly suggested that this early retirement might be different, that he might no longer be invited to professional conferences, that his visa requests for overseas travel might be denied. There would be no dacha in the country, and he would have to give up his spacious flat. And then it sunk in. His next thought had been for Semenov.

Cherniavsky could only guess how much farther he had to drive. Everything was black outside the small cone of light projecting ahead of the car, and that was filled with a mass of swirling snowflakes. The melting snow on the windshield was being pushed by the wipers into crusty ice ridges; bits of ice were beginning to stick to the wiper blades, lifting them off the glass. Cherniavsky clutched the steering wheel, pulling himself closer to the windshield, and strained to see the road. He had already had one harrowing excursion onto the soft shoulder.

Semenov's car, covered with snow, suddenly came into view. There were no tracks from tires or shoes; Cherniavsky hurried across the yard and let himself in the front door. One lamp was on; he called out and turned on another,

then another, and another, until there were no more rooms. Semenov was not in the house.

You are too old to play games like this, Ilya. Cherniavsky was already out of the house and walking across the clearing in back. He raised the light, but it would not penetrate the falling snow. He called out, but there was no answer. *Maybe he isn't here after all.* Then he was close enough to see.

"Ilya?" Cherniavsky's voice was gentle, but Semenov just sat there, staring. He was at least wearing his hat this time, but something was not right. The light quickly searched the bench, and again found the bottle of vodka, but there was something else. He held the light and took the black metal object from Semenov's gloved hand—his Tokarev pistol. Cherniavsky's throat tightened and he turned his light on Semenov face; its blank stare seemed to confirm what Cherniavsky resisted, but Semenov seemed unhurt. "Ilya," he repeated, this time with more urgency, sitting down on the snow-covered bench next to his old friend. Then he noticed the scarf that Semenov had wrapped around his neck, stained red, and with one gloved finger he very carefully eased it down until he found the small hole. His first emotion was anger, even as the tears filled his eyes.

"You're such a fool, Ilya. It wasn't worth it. *We still had each other.*
Damn you! I would have stayed with you. You know that. We could have found

other amusements."

He pulled Semenov close, the anger having turned to sorrow. He didn't move again until there were no tears left. Then Leonid Cherniavsky gradually relaxed his hold on Semenov and turned to face him. "And now you are gone," he said softly, the words seeming to release him. He slowly became conscious of the snow that fell around him with only the slightest hint of a whisper, and the light he still held in his left hand. Then he felt the weight of the Tokarev, still in his grip. He studied it for a moment, took one breath, then raised it to his throat and pulled the trigger.

There was no one left to hear the sound.

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