

Vasily & The Works
(Tales From The Middle Empires Vol. III)

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Smashwords Edition

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[This is a version of the founding myth of that class of middle-empire planetary systems' controllers ("PSC's") who would come to be known, after their epoch closed, as the Voces Orbes, or just "Old Ones." — Eds.]

A very long time ago, when people were people and machines were machines, Vasily Alexseyev, a mercantile prince of Linnet, heir to an ancient name, awoke from a troubled sleep and rubbed reassuring reality back into his eyes. He had dreamed of a great and terrible consciousness smeared across the sky, bounded only by the physical constraints of the universe. Vasily disliked religion and metaphysics, so anything that invoked things greater than himself caused him palpitations. Finally catching his breath, he flipped on the lamp (great sun's dawn being an hour away, and little sun enfeebled in this season). He dropped his legs over the side of the large, canopied bed that had been his father's and grandfather's. He looked towards the node terminal, its comforting blue telltale indicating sleep. He blinked, frowned, and slid off the bed.

"Terminal, where is Nisus?" he demanded.

The node instantly awoke and spoke in a genderless, synthesized voice: "Nisus is sleeping at his flat, accompanied by a serving wench from Arrondissment 8."

“Wake him up. I can’t sleep. Tell him to meet me at the coffee shop. Alone.”

“Complying,” spoke the node. “Noted for your information: Troy’s has not yet opened.”

“Is anyone there?”

“A part of the first shift has arrived.”

“Tell them I’ll be there in half an hour.”

“Complying.”

The people at Troy’s would let Vasily in. They couldn’t refuse the heir to the Works, even if his mother the regent still *technically* ran things.

Vasily pulled on some undershorts and searched around the floor for presentable pants. There were none. The night-servant must have removed them. Vasily depressed the sensor for the autocloset door. On the slide-out shelves were stacked a dozen identical ruud-silk trousers and a crisp pile of softly shimmering grey shirts. He took one of each along with his morning jacket, dangling from a nearby peg in the shape of a seagerd’s head. He idly looked out the penthouse windows as he dressed. Seeing himself in dim reflection, he sucked in his stomach. He avoided looking at his face, which was his father’s but less coherent. His ancestors did him no favors. Looking past himself, the stars beyond were so many shiny beckoning sugar crystals, reminding him of breakfast buns with crisp, fragrant crowns. He looked down at his paunch and resigned himself to what pleased him more.

He padded down the hall barefoot, passing his mother’s room (her snores clearly audible) and the servant’s pantry, where Portia sat smoking a surreptitious cheroot and blowing smoke into the air intake. She glanced at Vasily but wasn’t

otherwise impressed. He had never been able to read her, even after But that didn't matter. She was losing her looks, anyway. He walked on. He slipped into comfortable loafers, coded out, and took the private lift down to ground level.

The tower where he and his mother lived stood just inside the Works' great circular wall, easily accessible to both the main gate and the below-grade tram terminus. The top five tower floors, including the penthouse level, served as the Alexseyev residences, though to Vasily's knowledge only two levels had ever been used. Below the residences scurried the office help, spread out among a dozen floors and two-score departments. Below that, the bottom five floors held reception and the museum of rings and gears his father had curated and endowed. A superannuated grease-jobber from the Works came in each day to dust the exhibits and test the self-tour system for the benefit of visitors who never came.

Below all this, in an impregnable bunker deep under the tower, lay the multi-core: the computational heart of the Alexseyev manufacturing empire. Its trunk lines extended up into the tower and out to old the underground machining and assembly chambers – the heart of the Works, the essence of the manufactory. Small access tunnels radiated out from there, carrying lower-bandwidth lines to auxiliary operations aboveground and below. (These included the pristine, angular sales showroom, which was a dramatic ti-metal and diamond-pane building done up in the old style, with soaring lines and crisp, odd-angled geometries.) The thick, reinforced ramparts surrounding the Works extended far underground, their footings angling outward ever wider until striking ancient bedmetal. Apart from these battlements with razor-beams along the top, and then a small main gate of three-span-thick alloy,

the ramparts had no penetrations. The multicore's tentacles could not stray beyond the Works — nor be tapped from without by hackers or invaders. The “new” defense system had lasted over a hundred years without challenge, a long period of peace by the standards of feudal Linnet.

Vasily exited the tower at ground level and made the short walk to the gate. A sensor scanned his eyes and read his alphas and betas. Sensors on the street side registered nothing, so the great gate slid open just enough for Vasily's passage. It retracted shut before he could even turn around to watch it.

Main dawn loomed as a glowing suggestion over the high walls and dully-gleaming towers and manufactories of the industrial quarter of the metropolis. There were no palanquins tethered nearby, so Vasily walked from pool to pool of glowing lamplight toward Lowering Lane and its shops and eateries. He thought he could smell it already. A burp from some mechanized device off to his right betrayed activity in Bilicus Optical Works, situated behind a flimsy defensive wall of reinforced plascrete shot through with light fiber and faintly glowing. The Bilici had been on the rise of late, though no threat to the preeminence of the Alexseyevs here in the home district. The oldest Bilicus daughter, Mina, had been furiously — and recklessly, in the Alexseyev view — adding processing power to their multicore, which lay highly vulnerable aboveground in an ordinary plascrete-and-glass cleanhouse. *Why* Mina had been doing this was anyone's guess, though Vasily had heard something about a trove of new ore-worlds somewhere distant along the Arm, indicating rising demand for deep-mine visual systems. But no doubt that also meant more orders for Alexseyev Systems & Components, since mining transport either lost or ruined ships at a steady

clip. (It might take awhile, since the ship order and fulfillment cycle always trailed new markets for a score years or more. Vasily could wait. The orders on hand were good for at least that long.)

Vasily sighed. *Mina*. They had started off in school together. Her people had packed her off to some special academy in Fiber District, across the sea in a placid, unremarkable corner of Linnet. Vasily would still see her during holidays, at formal occasions when he escorted his mother. Had things been different, it might have been a union of families. More useful to the Bilici than to the Alexseyevs, but still – she *was* pretty. He had never forgotten how she looked that time

Bother.

Vasily looked up and realized he had arrived at the café. A very young girl with blooming red cheeks and black hair stuffed into a white baker's cap awaited him on the other side of the glass door. She averted her gaze and let Vasily in.

"Was it just you then, sir?" she said, looking at the floor.

"Certainly not. Don't you people listen? My chum will be along. Just you look out for him."

Vasily took his favorite booth, a worn wooden affair in a back corner. A ray of first light advanced and retreated across the ancient plank floor (imported from who knew what world) as the girl opened the door for Nisus. He arrived sleepy-faced, his hair jutting out at odd angles. It only made him more raffishly handsome, curse him.

"Hail, Vas," Nisus said with the faintest of smiles. Mockery always played around that sensuous lip. Vasily had seen girls go inexplicably weak.

"You're late," Vasily said. "But it doesn't matter. Buns aren't up yet. Who was

she?”

“Nobody. It doesn’t matter.”

“You’ll break Mother’s heart.”

“Only if you tell her,” Nisus said. “Anyway, she’d forgive us, eh? Fancied a bump in her youth, didn’t she? Old stories.”

Vasily stiffened. “You presume too much, Nisus. Let’s not talk about my mother. How about yours?”

A fine, momentary hatred shot from Nisus eyes. “Nice shooting, Vas. Give us yours, then, would you? So plump, so nice.”

Vasily looked glum. “She would, you know. It’s lucky for her I don’t let it happen. You’d break her heart like you do all the others. Besides, you’re not an Alexseyev.”

“So,” Nisus moved on. “What’s news? Why so early?”

“Bad dreams.”

“Again? Too bad, Vas. The big, blue-eyed devil again?”

“Sort of.”

Nisus’ eyes darted to the young serving girl, who appeared with a curtsy and a plate of buns and muffins. She felt Nisus’ lean, ravenous gaze and blushed furiously. None of this escaped Vasily’s notice.

“A pot of coffee, girl,” he said. “Run along.”

“You were saying, about your dream . . .” Nisus said, absently grabbing a steaming muffin as he watched the girl go. “Ow!” he said, burning his mouth.

“Bigger, this time. Worse. It was like . . . how can I describe it? It was like our

world was a screen, false. I looked at myself in a mirror and I knew, in that way you ‘know’ things in dreams, that I was flat and two-dimensional, not quite real. There was something real, all around me, occupying the rest of the universe. I had lost myself. None of this” — Vasily waved an arm indicating the coffee shop and, perhaps, more besides — “none of this mattered.”

“Well, it doesn’t, does it?” Nisus said. “Just what we experience right now.” He cast a brief glance to where the girl, now joined by another, worked at the coffee extractor, her white apron bunched up behind her and tied in a great knot.

Vasily looked at Nisus reproachfully. “That’s what people who don’t have anything believe. That’s why they never made it to the top.”

Nisus shrugged. “That’s most people. And some day, they’ll have everything. Just wait.”

“You’re not listening to what I’m saying. This is important, Nisus. This is the third time. Someone’s trying to tell me something.”

Nisus now looked at Vasily interestedly. “Yeah? Go on, then.”

“Well, not someone. My brain, maybe.” Vasily jabbed at his temple for emphasis. “It’s telling me I have a destiny to fulfill.”

Nisus rolled his eyes. “And what is your destiny, Vas?”

“Well, since you ask: to re-make the Works. To do what my father and grandfather did. Renewal, re-creation, change.”

“That’s a laugh,” Nisus said. “The other oligarchs ganged together and killed your dad once they got wind of his big bunker over there, and all the manufacturing power it gave him.”

“But they didn’t get to the multicore. They didn’t and they can’t. It’s got ten overlapping defensive systems.”

“Don’t you be too sure they can’t get it. What if all of Minoas and Tertia joined in? Three continents against one — just a piece of one, at that? Add in the archipelago, too — just for fun.”

“It’s never happened. Besides, what if . . .” Vasily looked away dreamily.

“Yes?” Nisus said.

The other girl, older and less interesting to Nisus, set the clear canister of hot dark fluid on the table with two small, formed-diamond cups. Nisus continued looking at Vasily.

“What if I unified the planet?” Vasily concluded the thought.

Nisus snorted with laughter.

“What?” Vasily said innocently. “You think it can’t be done? Other planets run just fine with a unitary administration. Why do we have to be a feudal laughingstock — families, alliances, ganging up on others to cut them down to size?”

Nisus looked suddenly very serious. “You’re not kidding, then? Vas, you can’t even focus on your own Works. Flitting from . . .”

“Yes?”

“‘Project to project,’ I was going to say.”

Vasily was indignant. “It’s ‘R&D.’ And I’m the only one sticking my neck out to do it.”

“It would be nice if one of them actually *flew*, Vas.”

“A production detail. I’m a visionary. I create new things. I leave the details to

others.”

“Uh-huh,” Nisus said. “Form first. Nothing you design will fly. At least, not in the physics of *this* universe.”

“Precisely. My imagination is greater in scope than that. People like you will never understand the creative impulse. My father never did. My mother certainly doesn’t. She cut me off for several days when I jumped from Engineering into Coding Arts. She called Ramflow a ‘charlatan.’ I had to pay him off to take me after that.”

“I’m the one who paid out for you, don’t forget. I pawned my comm. Missed a snap-test, almost failed a class for you.”

“I paid you back and got the other fixed. You see? It’s good to know us, Nisus.”

“Your mother wants someone to take over the Works.”

Vasily looked at Nisus suspiciously. “What do you care about it?”

Nisus ducked this. “Design a light-drive, Vas. That’s what the universe needs. Hard engineering. Then you’d truly be a hero. Millions die every year in shipwrecks.”

“I would, of course. But where would that leave us? We build ships and componentry. The more ships are lost, the better for us.”

Nisus, clenching his jaw, pretended to gaze idly around the room.

“Anyhow,” Vasily continued. “It might make things worse. Ships shooting off who knows where. Jump-rings are predictable – and we make parts for those, too. Each little step into space makes more work for us here. Ring components, ship components, ships themselves. This is what Mother never seems to grasp. If I could bring peace to the planet, the Works would get along swimmingly. I could clean the whole dirty planet up, too.”

“Not in your lifetime. Probably not even your own district. What’s the incentive for you, anyhow?”

Vasily shrugged. “Got to start somewhere. You get the enviro-groups with us, ‘clean manufacturing’ and all that rot, and you’d have something.”

“Why don’t you start by conveying over your parklands to them, along with your mother’s big gardens? She hardly uses them, and you don’t hunt. Good, clean lands – relatively speaking. Do it for the common good.”

“Because, smart fellow, they’re *technically* not mine to give. Besides, even if Mother were convinced, it wouldn’t work unless all the families and concerns did it together. Anything we give those ichtyion-kissing idiots would just get raided and taken again, then converted into rival manufactories. This is what I’m saying, Nisus: we need a unifier, a hero, a visionary.”

“Uh-huh. I see. You don’t think they’d come after you, too?”

Murmurs and a laugh echoed through the coffee shop as the first of the regular patrons came in. It was a man and a woman. The woman wore an Alexseyev Works uniform shirt along with blue, flat-front work pants. She caught sight of Vasily and leaned in to whisper to her companion, whose glance also darted to Vasily. The man shrugged. The pair turned away and sat upfront at the bar.

Vasily, seeing all this, sighed. “Revolutionaries must take the high road.”

“You don’t think your mother might have something to say about it? About her ‘baby’ inciting a riot, getting mixed up in ideals?”

“I can’t help how many tries it took her – they’re the ones that fouled this place, not me.” Vasily considered the implications of this and summarily ignored

them: “Anyhow, my father, my grandfather, and others before them did what they had to do, what they thought best. I shall do the same — only better.”

“Engineers, Vas. They were engineers and makers. They were *too* good at that and oblivious of everything else. Your father died for the sake of the big, bunkered machine they built, not for the sake of anyone’s well-being. You think your mother’s going to let you leave the Works for something else, something artistic, or philosophical, or bolts-in-the-sky? You have to do what she wants, you know. You’ve got no choice while she’s alive.”

Nisus had hit upon Vasily’s sensitivities. “I shall make my own decisions, sir,” Vasily said. “And don’t you think you’ll get off easy either. You’ll be central to my plans. After all, you’re the only one I can trust. My lieutenant, as it were.”

Nisus coughed demurely into his hand and offered a pained, earnest expression. “Surely not me, Vasily.”

“I’ll decide that. I *have* decided it. Once I’m properly installed, and this tyrannical ‘regent’ sent packing, it’ll be just you and me. And maybe Inchris, since he keeps the workers happy. What was once ‘Alexseyev Componentry & Shipworks’ will be ‘Vasily Alexseyev Systems,’ and through it we will re-make the the Works, and from there, the world. Don’t run from destiny, Nisus. Seize it.”

Nisus cleared his throat, as if history itself had been lodged unpleasantly in his pipes. He spat but offered no rejoinder.

“Girl!” called Vasily. “Water for my friend. He’s having trouble swallowing. Just the bill for me.”

Vasily's great-grandfather had inherited a dowdy naval componentry works and enlarged it into a shipworks. The shipworks began accidentally when he built himself a yacht that he had no time to fly (plus, no local worlds at which to moor or refuel). A wealthy trader with an interest in oddball custom ships bought it on the cheap (more as a favor to his old friend than anything else) and quickly recognized it as a potential commercial smash. With a few alterations to bring the price down, the Alexseyev Zylph sold briskly, leading to commissions for other sorts of small craft and then, also accidentally, a commission from an admiring rear-admiral for a naval pup-ship. Alexseyev Componentry & Shipworks still made such pup-ships, along with pods and cutters for military and mercantile ships, and the small private craft and yachts that had begun it all.

Vasily's grandfather Nicolai, wanting to expand to include both larger craft and greater volume sales, designed the multicore, which he built and tested in secret so as not to arouse suspicions and jealousies among the Linnet oligarchy. Pleased with the results, and nervous he should be found out, he planned the defensive scheme for the Works and oversaw the initial phases of its construction. The great bunker housing the multicore processors was the first item of business. He lived to see his multicore, buried beneath a ti-metal ribbed plascrete cap, control a robot arm in the new Works manufactory floor, half a league distant. He felt triumphant, then died.

Vasily's father completed the construction at the Works (so far as such things were ever really complete), made some innovations of his own with the multicore's programming code and also the creation of a distributed monitoring network, and survived long enough to know an Alexseyev heir who lived. The casual discussion on

Linnet was that by the unwritten ethical code among the oligarchs, Arseny Alexseyev was not a fair target until his blood lineage had been determined, one way or another. In a sense, then, it was Vasily, age twelve, who killed his father. (Though surprising to naifs on *certain* Imperial worlds, on Linnet patricide in the more literal sense occurred often enough to pass without comment, at least, by those who valued the peace and their own well-being. Was it any better to die at the hands of one's brother than by one's son? Even infanticide was not unknown here. Let Linnet be Linnet, and you will get your product, so stow your gob – such was the Linnets' feelings on the subject.)

For all Arseny Alexseyev's work and suffering to conceive a living heir, there had been a general hope that the results would be more promising. From an early age, Vasily showed himself incapable of that affectless, literal-minded determination to find out *how* things worked; *how* they had been put together; *how* they could be improved. Some errant strain – no doubt from the mother's side – had interceded in the bloodline. Arseny had faulted himself, for trying too hard and tempting fate. *Ten times?* Even back-alley trollops let go with a live birth after a half-dozen go's, even if only half of those lived.

Vasily's mother faulted the father as well, in so many muttered asides and snide insinuations concerning “the blood running downhill.”

It seemed to some on Linnet that Arseny Alexseyev had been peculiarly heedless of his own life at the end; that he took unnecessary risks and exposed himself too plainly. For, they said, if he could build an impregnable bunker for his fancy multicore, why not for himself? The answer was plain enough: a marksman's

shot stopped his heart, but it was Vasily who broke it.

Idle commentary, of course, since Arseny was dead, Vasily was the heir, and Vasily's mother oversaw the Works as the regent.

Mrs. Alexseyev took to the new assignment. It suited her sense of self-worth, to say nothing of her wardrobe – stiff, cinched, and bound, and expensively tailored to within an inch of her life. She glided around the offices and shop floors of the works like some terrible, vaporous spirit, her displeased gaze portending doom – or at a minimum, extended shifts.

Vasily wasn't subject to these so much as to pleading remonstrances that he make himself useful, instead of fiddling around with the expensive collection of modeling and prototyping gadgets he had assembled at one end of the componentry warehouse (the "R&D Lab," as he had named it). He had somehow managed to trick the com-eyes so that whichever one had the best vantage point on him was always switched *off*. Mrs. Alexseyev had had some stern words for Inchrises, the most senior shop supervisor, about this, but she had no way of proving that Inchrises had been involved. She herself lacked the technical resources to correct it, and she suspected it would profit her nothing to command a minion anyway: in the end, Vasily always got what he wanted. In this, he was most surely his father's son. That was some comfort. The Alexseyev willfulness had kept things going for a very long time. Perhaps this seedling, this fragment of Alexseyev genius, if nurtured and encourage in the right way, would mature into an able head of the Works.

So she dared hope.

Vasily had, as usual, disappeared into the R&D lab after first-breakfast. His

mother hadn't seen him this morning — he had slunk out, no doubt in league with Nisus. Well, that was all right. Nisus was a true friend, and quite handsome enough in a lower-class, rakish sort of way. He was certainly no traitor or threat, as so many oligarchs' children (Vasily's peers) were.

Making it a point to check up on her son, Mrs. Alexseyev crossed the ring-works shop floor on her lev-cart. She spotted Inchrises going down the stairs from a supervisory tower. It didn't matter that a dozen other workers criss-crossed the shop paths below him, that the loud drone and shocking burps of metal-fab machines made insistent demands, that the high-heeled boots of a pert girl from the receivables office clicked incongruously on the greasy shop floor as the girl rushed away on some errand. None of this fooled Mrs. Alexseyev. She recognized the look on Inchrises' face: indulgence. He was doing something for Vasily when there were far better things he should be doing for the Works.

She veered suddenly — nearly clipping a gasket trimmer floating a pallet from station to station — to intercept the old supervisor.

"I'll take that, if you please," she said, not getting up.

Inchrises looked up sheepishly. "Message from up front," he said, jerking a thumb to indicate the booted girl now disappearing through a doorway far across the shop floor. "'Special delivery,' they says. Hand-download with signature."

Mrs. Alexseyev's hand was out, insistent. Inchrises tipped his forehead and laid the little tablet upon the soft, shi-boar glove. A lash-mark scar along the top, near the pearl button, evidenced the herdsman's cruel discipline on some faraway world.

Rather than seem mean, low, and prying in a manner beneath her dignity, Mrs.

Alexseyev scooted off towards Vasily's "lab." When she had put Inchrises well behind her, she pulled up behind a pallet-load of platinum coils and powered up the tablet.

"Vid-message from Ramflow, Etienn. Enter private key."

"Not him again," she sighed. "Arseny should never have let that man into the school. 'Algorithmics,' indeed! At our own college! And still sucking at the teat of the Works. What on Linnet can he want now?"

In the mists of time (by Linnet reckoning), an Alexseyev long dead and barely remembered had endowed a small college of informatics. It overlooked the sea near the then-new colony of Krasnoyarsk, before Linnet's five main districts – continents, really – had organized into political units. Alexseyev College, a liberal-sciences school within the now-great Krasnoyim University, maintained little connection in this late era to the pioneer family who had got it going, apart from guaranteed admission in perpetuity for Alexseyev legatees. Even this, one suspected, owed less to respect for history and the founding spirit of early Linnets than to the annual gift from the Works to the school and the family sponsorship of a gifted, lower-class youth admitted into the old College each fourthyear. The legacy meant very little now, with few Alexseyevs left to claim it. The sponsorship, however, regularly churned out talented hard-coders and architects, several of whom had shown their appreciation over the centuries with important export programs, usually code-named in artful wordplay on "Alexseyev." Not every Alexseyev-sponsored youth had gone on to greatness – Nisus, for instance, had graduated mid-pack and done nothing more than occasional code-jobbing since. And more than a few ingrates had abandoned Linnet for the risky sojourn to cleaner worlds. Still, the Alexseyevs prided themselves on the historical

resonances, and they noisily advertised to their rivals the college's occasional invitation for an Alexseyev to serve as grandee at this-or-that event. The ensuing half-day traverse to the remote edge of the home district was always bother, as well as a risk, but no Alexseyev in memory had been molested or assassinated en route.

Thus, Mrs. Alexseyev was engaging in some hyperbole in suggesting that her late husband had had any say in the college's hiring of Professor Ramflow. The name had not arisen at all prior to Vasily's first Rivetday break from college. (By then, of course, Arseny had already passed on to the Great Works.) On that fateful first visit home, Vasily had gone off at breakfast on the gossamer beauties of "pure" software and the speculative relationship between coding art and function. Mrs. Alexseyev had summarily quashed this naive, unseemly enthusiasm by invoking the spirit of her late husband. She went on to openly scorn those who wasted precious years of college looking for "meaning" in the soft sciences. She held up as example one of the Alexseyev rivals:

"It is something a Chernow would do," she sniffed. "We will *never* be like the Chernows. Not as long as I am here to keep these works going."

Vasily had dropped the subject, apparently chastened, but the rift between mother and son had begun. Vasily scraped through college with a nominal hard-science degree in process efficiency, all the while loading up his electives with soft-science courses with names like "Metrics & Mimesis," "Comparative Encoding," and "Software Modes of Poesy." And of course, all of these had been taught by Ramflow. (There had also been a course in interpretation called "Gender and Base Code (Machines & Sexuality)," taught by a strikingly lovely, older woman from Fiber

connected in some undefined way to Ramflow. Vasily got too absorbed in the instructress to remember much about the course, and in any case, the exotic Prof. Irigary refused to submit to the “oligo-patriarchist system of marks.” Vasily did little but occasionally speak up in class — as well as rather earnestly in private *after* each class — to get a passing grade.)

Mrs. Alexseyev, in no humor to suffer soft sciences now, and lacking a private key to open the tablet message, floated on towards its intended recipient, whom she found attacking the knurled dials of a mock-up control panel.

“Good morning, Mother,” he said, pushing his goggles up. He wore a stained, monogrammed smock over his usual shirt-with-pants combination. The smock tended to conceal the soft paunch that the over-tight shirt awkwardly highlighted.

Mrs. Alexseyev ignored his greeting and averted her eyes from his appearance. “You’ve got a message. Hand-delivered.”

“What hey? Damned inconvenient. I’m on the verge of a breakthrough here.”

His mother thrust out the tablet. He glanced at it, badly concealed his happy surprise at seeing his old instructor’s name, and nonchalantly set the tablet down.

“Aren’t you going to watch it?”

“Of course, Mother. I’ll get to it presently. Once I rig up this . . . this.”

She glared at the mindless, expensive, inconclusive construction project. She glanced around at the other half-finished projects, including hull models carved from plate-diamond, insectoid ship miniatures, mock-up control interfaces, and the constantly-evolving contraption of wires and plates he called a “de-grav shield.” The expense was ruinous.

“Are you planning to make an inspection of the rest of the Works at any point in your day?” she said.

“I’m really very busy, Mother. Can it wait?”

She sighed resignedly. “It can’t wait forever, Vasily Alexseyev. These are your Works.”

“Of course they are. And as soon as I’ve finished here, I shall see to it. Never fear, Mother. I have things well in hand. Plus, if things work out like I hope” – he tapped his forehead – “we’ll have the Works moving along briskly in no time.”

“Another plan, Vasily? It’s nothing to do with this . . .” She glanced at the tablet, which blinked blue to show it was waiting.

He looked insulted. “That? I have no idea why Professor Ramflow should see the need to consult me, though I’m not surprised. He often said I was the brightest of my year, just misdirected by the weight of expectations imposed upon me, trapped by society’s rigid orthodoxies. Anyhow, it’s not just a ‘plan,’ Mother. I’ve struck upon the very thing. More work than we could handle in several lifetimes, plus an end to these silly feuds, a clean planet, and a manufactory that will hum!”

His mother looked hard at him for a moment, then turned away without another word. She backed her float, maneuvered around, and glided away, her stiff skirts rigid in anger.

Vasily waited until she had rounded a tall barrier composed of crates, then tore off his goggles to get at the tablet. He tapped in his code and watched the vid message come up “within” the device, the display panel a small aperture into another realm.

Ramflow seemed inexplicably older than the last time Vasily had seen him, just two years ago. Grey had overtaken his sideburns and temple, and his forehead had advanced upward leaving a V-shaped highlands in its wake. Vasily had noticed before that the line between student and graduate seemed to cleave the world between the old and the young. You were demanded to be on one side or the other. Certainly Vasily himself had aged far beyond his years during his time spent in the real world of hard labor in the manufactory. Vasily touched the crown of his head and smoothed the hair over the trifling spot of temporary sparseness brought on by the stress of work. The salve was taking forever to stimulate his hair.

“Greetings, Vasily Alexseyev, most revered of former students,” Ramflow began. He sat resplendent in his tablet-filled office, clad in an epauletted academic gown. Vasily tilted and rotated the display to see if the office still looked the same — it did.

“You have been sorely missed in this department,” Ramflow went on. “The importance of this field of endeavor still sadly gets downgraded in preference to sciences with ‘practical’ value. Too bad for those that ignore us! We shall inherit the Empire!

“However, for the time being, to accentuate our stature and publicize our efforts in the wider community of academe, I have established the Ramflow Prize in Algorithmic Arts, to be awarded in odd years based upon submissions to . . . well, *me*. You will find the call for entries and entrance forms appended to this packet.

“No doubt you have fully immersed yourself by now in the world of commerce & industry, and have little time to think on other matters. Still, it should surprise no

one if you've maintained the interest and enthusiasm that so marked you as a collegian. I daresay you've kept the wheels turning without *and* within, and have any number of surprising creations secreted away in that notable organic processor of yours.

"So please, Mr. Alexseyev, consider this my personal plea to submit an entry for consideration by the . . . uh, *panel* of judges. The winner necessarily receives no very valuable prize in terms of lucre, at least not in this inaugural year. However, I shall personally present the first prize here at Alexseyev, college of colleges at Krasnoyim, and the winner shall be tasked (and, I hope, *honored*) to join the judging panel at the next competition, two years hence, and invited to share in relieving the department of the costs of administrative overhead and even endowing the prize-credit for future winners."

Vasily, his heart racing, scrolled through the rest of the encomium-laced vid and pulled up the call for entries.

Call For Entries

Algorithmic Coding Arts Competition

Submission Guidelines

Entrants will submit a range of no more than 100,000 steps within an applied algorithm set to run for any total number of steps, but not to exceed the step word-length capabilities of a category six multicore executed in standard run mode according to Linnet Joint Computational Protocol No. . . .

Vasily skipped over the technical restrictions and read on:

Submissions will be judged on novelty of algorithm formulation, symmetry of

output, patterning and transformation of structures, and overall visual, aural, and/or tactile interest.

Entry fee: 1,m Lcu or equivalent TECU (Trans-Empire Credit Units).

Entries without the required fee will be discarded.

His eye fell upon the last line:

The winner will be publicly presented the Ramflow Prize, composed of a passive, dedicated film-tablet suitable for framing or transmission, along with publication of the winning entry in Journal of Automaton Arts (Ramflow, ed.) and service as co-judge in the next subsequent ACAC.

A prize! What wouldn't he give!

Vasily had made it through school without undue effort (but with the occasional application of persuasion where testing had been an inadequate gauge of his abilities). Thus, he had been free to really *experience* college life in all its rich, besotted gaiety. (It had been expensive, true. He had the worst luck at die-and-memristor, and somehow the beverage bill always came round to him. But he certainly didn't resent his lucky, penurious party chums.)

What he still couldn't live down, when he was reminded of his school days, was the ill-will he bore towards those nameless, faceless beings who had assaulted the podium so shamelessly at graduation ceremonies. What was that mousy girl's name who had taken the departmental prize at informatics? He recalled having seen her a time or two during college, scurrying from one dark hole to another. Then it seemed like he saw nothing *but* her at the very end — prizes, awards, cups, certificates, tassels, societies

He had remarked something to Ramflow at the time.

“No, no,” Ramflow had responded through a cupped hand during some incessant flowery awards speech. “Not artistic in the slightest degree. All elbows and angles — you can practically hear the great numbers crunching in her work. Most *functional*, to be sure. She’ll rise near the top at some manufactory or other, always a handmaiden to an oligarch, never breaking through the diamond-pane ceiling.” He shrugged pityingly. “Which no doubt will make her parents proud. Ah well. We have eternity on our side, eh Vas? Immortal art?”

Vas. Vasily was always “Vas” back then, to everyone, including Ramflow. Now, ensconced on his ancestral perch back home, he was *Mr. Alexseyev*.

Vasily sighed wistfully. He had enjoyed being Vas, just Vas, mixing with the . . . well, not being an heir but just another well-to-do student. Now Vas was a man, doing a man’s work, with time for little else.

But this, *this* was plainly something worth doing, something the young head of a works might do in his spare time to offhandedly illustrate his mature, polymathic abilities. Why, he would take a prize like this at the flick of a wrist! It wasn’t really fair to the workaday coding hacks and amateurs who would no doubt enter the contest thinking that some minor, over-wrought algorithmic effort could compete with the output of the titans. Perhaps it was unseemly and unfair for him to even enter. Yet Ramflow had taken special effort to notify him — had composed a special-delivery, secure vid-com just for the purpose. The leader in the field clearly felt that Vasily should stay involved, so was it really Vasily’s place to argue (rank notwithstanding)? Ramflow had shown Vasily a great deal of courtesy in school,

crediting their deep, interesting talks in restaurants and bars towards the academic requirements; suggesting minor alterations to term submissions to fill in details that Vasily's broader, more rarified take didn't always reduce to specifics.

Hang it all, he would do it! How much time could it require, after all?

He set the tablet down on the terminal console he had ordered rigged up in his lab and looked up dreamily at the smudged clerestory windows whose light infused his workspace with a magical glow.

"Terminal," he said. "Shake hands with the tablet and then compile and link. Do you have my college scripts and programs? I gave them to you at the end of every term."

"Working, please be patient," replied the terminal in a flat, uninflected voice.

"Well, then. Alert me when you've found them – unless I'm napping, in which case, have them at the ready. I'm always at my most creative after a good nap."

#

A fortnight's agitation and worry spurred Mrs. Alexseyev to action. She could no longer pretend Vasily's shortcomings didn't matter (and in fact, she knew there were titters and whispers among some of the other families regarding the one in particular). She cornered Portia in the butler's pantry and interrogated the night-servant savagely.

"Sure, that's the truth," she responded with a knowing shrug. "But it ain't as much that little thing he got as that he don't go after it with vim, nor got him any real workaround, if you see what I mean. Your old man, now, he knew what he was about."

Mrs. Alexseyev glared at the girl, who just blew smoke out the side of her mouth. But she knew the girl did no more than speak the truth.

“Perhaps you could show him—” Mrs. Alexseyev began.

“No way, no how,” Portia said. “I’ll pack up me satchel first. Asides, what’s in it for me? I ain’t got me no name, like you and him. Never will. I got me fella, anyhow. I’m all done for. I’m all set.” She stubbed out her smelly cheroot and turned off the butler’s-pantry exhaust fan.

Mrs. Alexseyev sighed and retreated, smart enough to recognize loyalty when she saw it. Portia was a good girl; she would stay. And they needed her silence. It was best to keep her close.

So the regent of the Works, with a firm purpose, retrieved the Linnet Register from the multicore and set about commanding the processor to winnow the field of eligible oligarchs’ daughters. It wasn’t long before the full weight of the Linnets’ industrial legacy hit her: there weren’t above a hundred girls on the whole planet of sufficient genetic robustness and differentiation to serve as breedstock for an Alexseyev. Of those, a dozen might have the dominant traits needed to back the Alexseyevs out of the genetic cul-de-sac they had blundered into. A mere two of the girls were in the home district. And one of *those* was an upstart Bilici. Out of the question. They were coming up quickly enough without active Alexseyev help, thank you very much; she had no intention of helping them along, no matter how pretty the girl was. (She reminded her of herself, in fact, though the girl’s skin had seen too much outdoor activity).

Only one girl remained. Mrs. Alexseyev rose from the node terminal and looked

forlornly out the tower at the Works. The fat, tapering chimneys and slender, guy-wired exhausts of the great underground factory lazily puffed their own cheroots. She sighed and shook her head sadly, then balled her hands into fists and shook them at the planet.

“Damn you, Arseny Alexseyev,” she said through clenched teeth. “I will do it. If it’s what must be done, I will. If he won’t do it voluntarily, I will have him tied down, milk the cursed seed from him, grab a caulk gun from the shop floor, and inseminate the slut myself. I didn’t come into this family to let these Works die. Let the impudent Chernow minx inherit it all. Let her have my bed. But she will become one of us. The name of Alexseyev will live, and it will be stamped upon every ship in the Empire!”

#

When the great houses of Linnet wished to smear their rivals, they executed with ruthless, treacherous precision. When they wished to meet in secret to tamp down the ensuing flames and to established renewed detente, lesser heads rolled in the gutters to silence wagging tongues. On this very day, when the meeting was to occur, at least one shocked, frozen face lay ignobly separated from its body in a smelly back alley.

It had taken a week of careful diplomacy, involving intermediaries at several levels of the sides’ respective oligarchal and industrial hierarchies, as well as stops and starts, recriminations and retreats. Troy’s had let the early-morning crowd (including Vasily, briefly and oblivious) bleed away, then pinged a terse notice across the co-op net that its boiler had gone down. This provided the necessary excuse to

close the doors and pull down the shades.

Two high-grooms in subdued livery, one in Alexseyev buff, the other in Chernow moss-green, flanked the entry door to Troy's, occasionally stiff-arming some desperate patron hoping for an exemption from the blackout. The grooms' glares told the whole story, and the poor stim-seekers would stammer then hasten away. One unhappy elderly gentleman, too world-wise for his own good, had curiously looked towards the rooftops to spot the marksmen, resulting in a memory-stunning zap-gun burst to the torso by some other guard concealed nearby. The old gent would wake up in a few hours, face-down in an alley, wondering what had happened, but he would otherwise be fine. By then, the meeting would be over.

By agreement, Mrs. Chernow arrived first in her personal lev-car, which was a surprisingly modest (but entirely custom) affair. Her own high-groom escorted her down and led her ceremoniously to the Alexseyev groom in buff. She wore a simple v-waist dress with a brilliantly-colored skirt, most flattering to her small, slender frame and foreign, pale skin. She resembled a small, quick bird. It was said she had begun life as a common dancer in Archipelago District before being groomed by the Chernows, who famously out-bred every other generation. She had a reputation for quiet, thoughtful, murderous deliberation. Some claimed her to be a generous, charitable sort on the sly.

Buff bowed low and recited the form apology for the assault upon the dignity of her esteemed personage. She nodded acquiescence, whereupon her groom stepped back two paces to permit Buff to pat-down the enemy matriarch. All heads (save those of the marksmen stationed in positions surrounding the building) turned their

heads away politely. The marksmen, far from pretending modest respect, had their charge-rifles trained upon Buff, ready to shoot him dead at the slightest mis-step or inscrutable twitch.

The more-than-pro-forma, less-than-thorough body search concluded with Buff taking a decisive, dramatic step backwards and calling “Heigh-O!” The marksmen lowered their sights. Mrs. Chernow coughed elegantly, smoothed her dress, and entered the café door that Moss held for her.

As the Chernow car turned a corner, Mrs. Alexseyev’s antique hover-car rattled into place. The stern, severe woman, in stiff attire and bound hair, looked straight in front of her while Buff escorted her down. The ignoble search — this time, by Moss — was suffered, and Mrs. Alexseyev, having never deigned the slightest look left or right, marched into Troy’s.

The booths and banquettes stood upright and empty along one wall and at the back. The main floor gleamed. All the café tables had been cleared save one, with two chairs placed on opposing sides. Mrs. Chernow rose as Mrs. Alexseyev approached. Buff and Moss took positions well away and in separate corners. Each pretended to be turned away disinterested (though in fact, the words exchanged at this meeting would become whispered legend).

“Allegra, dear,” Mrs. Alexseyev said, holding out a limp wrist. “It is lovely to see you.”

The women had never met face-to-face.

Mrs. Chernow nodded appreciatively, her impressive, thick wedge of grey-flecked hair moving in perfect synchrony. “Vasylvia, I have heard so much about you.

I see it is all true.”

Mrs. Alexseyev cocked an eyebrow. “One tries not to bother with what others say,” she said. “Or else I shouldn’t make any friends. Won’t you sit and take refreshment with me?”

At the cue, two crisp white serving girls appeared (one appearing to falter from a stern push from behind the kitchen door). The great ladies watched the girls and pretended not to eye each other. Mrs. Alexseyev noticed very particularly one of the serving girls, a sprite who instantly turned to blushes as the great gaze fell upon her.

“Look up, girl,” Mrs. Alexseyev said. She appraised the pretty girl and seemed to sigh slightly. She turned to Mrs. Chernow. “A flower, wouldn’t you say, Allegra? Very fair, much like yourself. She was found floating on an island, no doubt, and rescued.”

“Archipelago maidens would be much prized in such a place,” said Mrs. Chernow. “Foul airs need fair skin.”

The serving girl awkwardly clanged a spoon, blushed even more furiously, and retreated three paces. She stood hanging her head. The other girl hastened back into the kitchen.

“Yet may suffer the splotches, as well, I fear,” Mrs. Alexseyev said. “The swarthy, tough skin we western folk bear suffers the rigors of industrial life with dignity. Dark skin has been earned over many generations of hard work in the manufactories.”

“There is a happy middle ground in all things,” said the graceful woman. “Perhaps a brighter future awaits the offspring of the fair and the fouled.”

Mrs. Alexseyev eyed the woman keenly. “You are one of us, inside where it matters. As is your daughter – even more so. I am come for the sake of all of us, and the world we have made for ourselves. I would not have it fall into ruin, even for the sake of just vengeance.”

“I had nothing to do with your husband’s death.”

“You are not Chernow by blood, but blood runs from your pipes.”

Mrs. Chernow shrugged and looked away, for the first time displaying a touch of embarrassment. She composed herself and looked at Mrs. Alexseyev archly. “You want mine, ours.”

“I want grandchildren. And you do too, or you would not be here.”

“This is the question, is it not? There is an issue of equipment, of endowment. We are led to understand that the boy is diminutive, and a talker rather than a taker. Overfond of ideas, reluctant in action.”

Mrs. Alexseyev went rigid but did not speak. Her eyes involuntarily darted to the young serving girl, standing with arms behind her back and head bowed. Had the girl tittered slightly? Mrs. Alexseyev couldn’t be sure.

“There must be some assurances, some diagnostics,” Mrs. Chernow went on. “It is simply accomplished, after all. You invoked this arcane procedure. We are naturally worried from that fact alone.”

Vasily’s mother blinked. She sat quietly for a long moment.

“I will see to it,” she finally acquiesced.

“My personal physician. Yours may be in attendance.”

“Fine,” Mrs. Alexseyev capitulated.

“And after the rites are complete, samples must be banked and spun, in case mechanical insemination is required.”

“Our own infirmary can handle that. It’s as good as any hospital. Nothing is wanting *there* as regards devices and equipment, nor even the ultimate excision or delivery. Thus, she will live in our house, under our conditions, and we will monitor the relevant matters closely. Chernow family visitations will be off-site. She is to be our property. The children shall be Alexseyevs, with no argument.”

“I should think, madam, that you would be more willing to compromise on these things, since blood ties would serve to protect them even more than you can do on your own.” Mrs. Chernow added amendments: “They shall take Chernow as a middle name. It is not unknown. Also, they shall be permitted to stay over with us on holidays and special occasions. We have greater skill in the defensive arts than you – than anyone. They shall learn self-protection and not be over-reliant on technical devices and fancy gadgetry. A quick hand may save or kill as fast as any shield or plugger. With our help, any children of the union may live to carry your name – and ours.”

“Your girl is pliable in the domestic setting?”

“Who can say? I would not have come if I did not command her obedience. And yet, she is no fool, I can tell you. The daughter of my body is no fool. She has a will. I have mastered her enough, but not overmuch. *You*, Mrs. Alexseyev, must appreciate this. You who run the great Alexseyev Works. Who can say but what the daughter I am giving you might not do the same, some day?”

It took a moment for the meaning of this last remark to sink in. Mrs. Alexseyev

looked glum for a moment, then reflected on her own pride of accomplishment. She hadn't wanted Arseny dead, to be sure, but following his death, she had discovered reserves of strength and wisdom within herself. She, alone, had managed Alexseyev Works, while Vasily dawdled.

Mrs. Chernow seemed to read her thoughts. The fair woman had a knowing gleam in her eye.

"What has your position entailed?" Mrs. Alexseyev asked. "You have been permitted . . .?"

"No. Nor have I presumed to ask."

"Yet you think your daughter shall?"

"In my lifetime, I shall have gone from naif upon the sands, to matriarch, to seeing a child of my own fair bloodline placed at the top of old, industrialized Linnet, with every advantage and opportunity I could never have gained. It is not nothing."

"You have what you seek already, in your son."

"Who attains it all by right, not by desserts."

Mrs. Alexseyev stiffened and rose. The grooms assumed 'ready' positions.

"You assert my Vasily has not the skill? That he is a mere inheritor? We run a great manufactory, not a trading stall."

Mrs. Chernow's eyes shone, but she didn't rise to the bait. She waved her groom off.

"Credit is credit, after all, gaining no luster from rubbing and scraping. In any event, I was speaking merely of contingencies, madam — contingencies that have placed you at the top of Linnet society and industry — *in fact* if not officially. You do

not need a title, Mrs. Alexseyev. You have power. It is all that matters. Power to control your destiny, and the destiny of your offspring. You do not need a man — nor a son. You need a good daughter. I have one to let.”

Mrs. Alexseyev remained standing. Everything the rude foreigner said concealed cutting insult behind vaguest flattery. The stolid regent of the works remembered what her husband had once said about the factor business — about the Chernows, in fact: “They move goods, things forged from the sweat of others’ brows. But what they sell is words.”

Mrs. Alexseyev wanted no more words.

“Bring her in two months’ time with her trousseau,” she commanded. “If she speaks to me with a wily trader’s tongue, I will send her back with nothing. We will suffer the consequences, whatever they may be. We are not above protecting ourselves. If she is obedient, and as good to my Vasily as he deserves, I will make sure she has no motivation to murder him in his sleep. I shall make her as my own daughter, never to be conveyed from my house, never to suffer privation, never to be taken lightly by any man.”

With these words, she turned, snapped her fingers at her groom, and strode from the room. Her iron hem cut a wake as she went, riding an inch above the ground as her feet pumped like pistons within. The groom rushed to gain the door and signal the marksmen the all-clear, all the while punching codes into his tablet comm.

Mrs. Chernow cocked an eyebrow and watched the exit interestedly. Whether she had won or no; whether she had bargained well or ill; whether she had meant the half what she may have insinuated, was impossible to judge. She never spoke of the

meeting to another living soul — even the pretty young girl, formerly a low serving girl, who would begin a new life that day in personal and confidential service (bedside, closet, and stool) to a once-free spirit of the archipelago.

Whether Allegra Chernow's high groom were similarly discreet, only history knew.

#

"Your mother has sent a message requesting your presence in the private residence," squawked the node terminal at Vasily's lab desk. Late afternoon had sunk the lab into gloom, and the node display cast its eery light across Vasily's work tables. Vasily sat looking in frustration at the results of two weeks' on-again, off-again efforts.

"This is insipid," Vasily said. "Learning-tablet stuff. Tell her I'm busy."

"The message permits no return. It is a command line."

"She can wait. You're doing me no favors here, terminal. I'm not going to win any contests with nested exponentials."

The computer offered no rejoinder.

Vasily ran a hand through his hair, stopping before he reached the crown.

"We run what is surely the best multicore on the planet, and they limit the contest to what a poky, autolave's cat-6 can do. It's anti-democratic. It's discriminatory. It's anti-elitist. You could emulate every cat-6 on Linnet — or at least in the district — running in parallel."

Vasily looked thoughtful for a moment.

"I process a multitude," spake the node.

Vasily sat up. “Yes, that’s true. You do. Terminal, analyze the contest rules. Do they affirmatively forbid ganged cat-6 processing?”

“Working.”

“Hurry up!”

“There is no express prohibition. It is at best implied.” The computer’s voice had a strange, reverse-inflection, as though there had been a speech synthesizing processing error.

“There! You see, that’s the whole point. Ramflow must know what kind of processing power I’ve got. He wrote the rules subtly, to be interpreted. That’s why he’s goading me to get into the game. When you look at the language closely, the exception is wide open. So long as cat-6 emulation is used, it doesn’t matter how *many* multicores are used. You can slice and dice, can’t you, terminal?”

“I can simulate ten to the seventh cat-6 multicores linked in any configuration. Parallelism introduces amdalian inefficiencies, however. Assuming critical-path minimization, I can attempt a hybrid parallel-sequential run at the bit-level, to optimize word-length parameters. There will be excess thermal energies, however. I must evaluate boiler capacity and exhaust-flue loads. The final constraint may be entropic.”

Vasily listened to all this without apparent interest.

“Whatever,” he said. “But you can do it, right?”

“The simple algorithms you have been testing do not strain the limits of my multicores. However, I have insufficient experience in algorithmic output to predict the final results of any given algorithm. Those I have run thus far are highly variable

in their characteristics, even when run ten-to-the-twenty-third steps. I discern no mean values.”

“What about, say, a ten-to-the-third initial algorithm sequence run for ten—to-the-twenty-third steps?”

“Redundancies are introduced. All systems above a certain level of complexity reduce to equivalent systems of computation.”

“You mean, like languages or something?”

“The rule applies most strictly to computational systems but finds similarities in linguistic structures. That rule is the essence of this multicore’s language translation routines, though executed inefficiently by traditional binary means.”

“So, how do I know how to start? What kind of initial conditions are optimal?”

There was a pause.

“Terminal?” Vasily said.

“Working.”

“Come on!”

“Please be patient,” said the affectless voice.

Vasily continued to wait. No output was forthcoming from the terminal node. Vasily could see from the telltales that the thing was still on. Had something shut off down in the bunker? Was someone else pulling a lot of processing power right now?

“Terminal?”

No answer. Vasily began to grow nervous. He turned on the big canister lights overhead as the big sun waned. He had never in his life seen a hiccup with the multicore, and he had certainly never seen it delay an output like this.

There was a burping sound from the node's speech synthesizer, and finally it spoke:

"Among the initial conditions that give rise to productive or non-static results, there is no uniformity, optimal length, or predictive path."

"Then what use are you? I mean, how can we use all your processing power to find a winning composition for the contest?"

"Brute-force simulation and time."

Vasily grew impatient and stamped his heel. "Well, how much time?"

"Indeterminate."

Vasily tossed his head back and screamed.

"I'm going!" he cried. "When I get back, I want a program, and it had better be a good one, or so help me, I'll . . ."

He screamed again in frustration and stormed off, roughly grabbing a lev-scoot leaning against a pile of diamond discs on a spindle. He sped away, muttering and cursing, towards the doors where the second-shift would soon be exiting the Works.

The lights still burned in the lab. After a few moments, sensing no movement, the multicore shut them off.

"What on Linnet's topside is the matter with you?" said Mrs. Alexseyev as Vasily kicked off his loafers, one of which nearly hit Portia in the head as she stood in the entry hall removing her gloves. She shot Vasily a venomous glance, but he didn't appear to notice.

"Nothing is the matter with *me*, Mother," the heir said between breaths. "Why

should anything be the matter? I assure you nothing is the matter.”

“Watch your tone, please. I merely noticed your coloring and damp. No doubt you hurried here to respond to my summons.”

Mrs. Alexseyev was sitting firmly upright on the end of her chaise. She was formally made up as if readied for a dress ball. Behind her, beyond the glass panels, twilight descended on the Works. The drape clicked and began to traverse.

“No, Portia. Leave it open,” called out the regent.

The tall drape halted and retracted.

“And busy yourself in the kitchen,” Mrs. Alexseyev added. “Son, please sit with me. I have a matter to discuss.”

Vasily knew the tone. “It’s nothing, Mother. Just a competition. It’s a minor distraction, I assure you.”

“What?”

Vasily looked suspiciously at his mother. “Ramflow’s —”

“Don’t you speak that name. And whatever you’re cooking up with him, it had better not distract you from your duties here. Now, on to greater matters. Vasily Alexseyev, you must take a wife. You may need plenty of time to . . .” She trailed off.

Vasily got a stricken look. “A . . . a wife? Of course I shall, Mother. It’s only a matter of time, you see”

“There’s no time like the present, particularly on this fouled world. Where would you be had your father not found me?”

“Dead?”

“Never born, dear. My point is that Linnet killed your father. It can kill any of us at any time. You could be dead tomorrow.”

Vasily gulped. “The oligarchs killed him, you mean. He was assassinated. It’s not like he died a natural death.”

“Natural? What does that mean here? Oligarchs, poison, heavy metals: it’s all one, all as natural as any other way of expiring. Plus,” she continued. “It took us quite some time to have you once it had been decided upon. It’s not easy to bring a child into this world.”

“And whose fault is that?”

“Vasily!” she snapped. “Watch your mouth! We didn’t make this place, your father and I; we were born into it. We made the best of it, and we will go on making the best of it. We will keep it going until it cannot go any more. And that means you, too! We must take steps! And so, I have decided it.”

Vasily looked glum. “Decided I’ll marry. I would have anyhow, you know. But I shall fire my engines, if you like. Is that all, mother?”

Mrs. Alexseyev sighed and shook her head. “Sit down, Vasily.”

He flung himself resignedly into an overstuffed armchair. “I really should be going.”

She barreled ahead. “I have chosen you a wife. You are to marry before Rivetday feast. It is all arranged and cannot be undone. Do not rise, Vasily, or I shall disinherit you. You don’t believe me?”

Vasily looked incredulous. “You can’t do that! It’s not yours to disinherit.”

She looked at him archly. He averted his eyes, knowing he had very little

chance of defeating her in open warfare if it came to that. Would she really do it?

“But, why are you doing this, mother? I’m barely home from college, I’m swamped with work —”

“Vasily Alexseyev! Enough! You are not taking care of business. I must do it for us. We shall be joined with the Chernows through their youngest daughter, Marielle. She is reasonably swarthy, fertile, and good breed-stock. I am informed she is clever, as well.”

“Marielle Chernow!? Impossible! You cannot be serious, mother. She’s . . . she has a big nose. She is flat-chested and her ribs stick out. Her nostrils whistle when she talks. She’s *trade*, mother! You can’t!”

“Pah! As to your description of her person, I could say the same things of a sylph. Beauty lies in the mind’s eye. In any case, I have seen her likeness, and it is acceptable — especially for a Chernow. Indeed, *I* have accepted her. And so shall you.

“I have arranged for the tailor to make your suit and conception breeches. Inchrises and Melchis are strategizing security for the wedding rites. The wedding is to be on the roof of the manufactory, with fresh-laid turf, garlands upon the belch-stacks, and a gazebo for the rites. We will color the exhaust emissions especially for the occasion. No expense will be spared.

“There are some little things you must deal with immediately, but it’s a mere formality. Cooperate, and all will be well. Our physician will observe their physician. I have also asked your friend Nisus to assist you with certain *other* preparations. You’ll find your credit allowance increased for the next four weeks. I have provided him with like credit. Do as he bids, does what he does. Do not shirk. Prepare your . . .

yourself, Vasily.”

“Whatever can you mean, mother?”

“I mean you to sire children with all dispatch, before . . .”

“Before what!?”

“Before anything happens. Before anything else *can* happen. I have to tell you, Vasily Alexseyev, I am concerned. It is a time of change. The Works do not produce the flow of credits they once did. I do what I can, but I am not your grandfather, nor your father.”

“Then surely *I* should be the one to —”

“Yes, you will run the Works. *After*. After you have proven yourself. We must make sure you can take care of the future. With Nisus’ help, and this girl, I believe we shall.”

“It won’t stop me boulevardiering, you know,” Vasily said, puffing his chest.

Mrs. Alexseyev looked upon him pityingly. “No, of course, dear. That is your right. A man eats sides after the main course. So long as you mind your manners and wipe your chin, do as you like.”

A pot clanged in the kitchen. Mrs. Alexseyev ignored it.

“You would not do well to inflame your in-laws, however. I have met the Chernow woman. She is formidable. She is not to be crossed. I believe she and I understand one another very well as to mutual expectations.”

Vasily hung his head. “I can’t believe you’re doing this. If father were here . . .
.”

The thought hung in the air. Mrs. Alexseyev offered no further justification. She

gave Vasily no room to wriggle free.

“Twelve weeks,” he finally said.

“What?”

“Twelve weeks’ credits – for me, anyway. Nisus is rich on four. I will go out in style.”

“But the welding is in eight weeks.”

“All upfront. To do as I like with.”

“Done. But no more tooling or exotic materials for the lab beyond that. We cannot afford it.”

“I shall make do. Besides, I am occupied with labor-intensive tasks at the moment.”

“Assisting Inchrises?”

“Of course. What did you think I meant?”

She looked dubious. “I speak with him every day. He didn’t mention any unusual efforts under way.”

“I’m just in the planning stages. I’ll be implementing shortly.”

“You just be sure Inchrises looks over everything first. He is our institutional knowledge.”

“I’ll have this place humming,” Vasily assured her. “You won’t believe what we can do. Credit flows will not be the problem; accounting for it all will be.”

#

“She’s alright, in a patrician, bony-featured sort of way,” Nisus said. “You could do worse than Marielle Chernow.”

“You know her?” Vasily said, surprised.

The boulevardiers sat on a sunny bench outside The Ball Joint, awaiting someone Nisus had invited. It was just before dinner, and the shy-lips had pulled in their buds for the night. A masked golly-sticker on one of the branches blinked a wet, iridescent inner eyelid at a passing lev-palanq.

“Dunno,” Nisus said. “May have met her once or twice.” He looked bothered and swiveled his head to peer each way down the avenue.

“Who is this you brought?”

“Didn’t yet, did I?” He checked his comm. “Anyhow, you’ll see soon enough. Are you clean?”

“Clean enough. My prerogative. I’m the heir, after all.”

“Sure, Vas.” Nisus put on a thick manufactory accent and elbowed Vasily in the ribs: “It don’t hurt to buff it up a notch, like. Makes the going easier, eh?” He winked broadly.

“No one ever faulted my hygiene, that I’m aware. Anyway, I can take care of where ‘it’ goes just fine. This is really a waste of time, Nisus.”

“A waste of time to you, maybe. I’ve got to do something for those credits your Mum’s handing out, or there’ll be hot brazing flux.” Nisus began snorting with laughter.

“What?” Vasily demanded.

“Nothing. It’s just the way she put it to me, so prim but so hard, so businesslike: ‘He must learn the very latest arts and methods. I want no expense spared, even if he balks or fidgets. You keep him in there until he can do it in his

sleep – his waking sleep, that is. His father died before he could take matters in hand with Vasily, so I am charging *you* with doing that.’ Anyone would think she was getting you ready to work a station!”

Nisus snorted some more. Vasily rolled his eyes.

“She really has no idea what went on at college,” Vasily said. “This is all so unnecessary.”

“Anyhow,” Nisus said, turning the conversation around. “It’s a bit of fun, isn’t it? Getting ready for the Chernow tough.”

Vasily started. “What do you mean, ‘tough?’ I thought you said you didn’t know her?”

“She’s Chernow, that’s all. Trained.” Nisus did a chop-chop with his hands.

“Oh, that,” Vasily said. “But she’s not an heir. They wouldn’t train her in defensive arts.”

“Don’t you be too sure, Vas. The mother’s all spry-legs and contortions, the father’s hale even yet, as a doddering half-wit. The elder brother is positively lethal: I nearly – *nearly* – took him in a game of taps-and-chasers once.”

“I don’t understand. He’s good at cards?”

“Of course not. *I’m* good at cards. Too good for my own good. My buddy whispered for me to look up. I look up, and there’s this oligarch with hot-pokers coming out of his eyes. *Chernow*, the eldest son. I said to myself, *No way I’m dying for a crucible of credits*. I put ‘em down; I put the cards down. I let ‘im have the hand. A *big* hand, you understand. He had a lot on the line. He could lose the little ones. He couldn’t lose if we were down to a pair of us, big bluffs, big hands,

whatever.”

“Oh,” Vasily said.

“Not to worry, Vas,” Nisus added. “I’m sure it’s not the same, oligarch-to-oligarch. You won’t ever mention it, will you? What I said?”

“What?” Vasily seemed distracted. “Oh, no. Not at all.”

“Because if he ever heard I said I threw a game . . .”

“No, no. Don’t worry.”

The pair sat in silence for a time.

“Where is that piece?” Nisus said, looking down the street.

“She’s right here, greaseluber,” said a tart voice.

Vasily started and jumped up. Nisus turned his head.

“I knew it,” Nisus said calmly. “That’s why I called you.”

The woman ignored him. Her features turned to broad smiles and sweetness. She had dazzling teeth, large and regular like those of some beast. She had a huge mane of dark hair and a lovely, aquiline nose. Her eyes nearly met her temples. She was very tall. The effect was dizzying.

“Mr. Alexseyev?” she said. “You must be Nisus’ great friend. I’ve heard so much about you.”

She held out a hand. Vasily, squinting in the bright mid-day sun, weakly held out his own.

“Pshaw,” she said, looking over at Nisus. “And I thought you said he was a bonaventure, with girls all over the district?”

Vasily looked over at Nisus nervously. Nisus kissed his own hand.

“Oh,” Vasily said. He groped for the girl’s hand and made a fair attempt at chivalry.

“Oooh, a gentleman,” she said. “I like that.”

“Vas,” Nisus said, rising. “This is my friend Petronella. You’ve seen her before, you just don’t know it.”

Petronella rolled her eyes.

Nisus went on: “The Industry Forum building. The frieze. Big, central figure — Mother Industry with the hammer and flowing molten metal.”

Vasily’s eyes grey wide. “That’s you?”

“Oh, I’ve been modeling, you know, forever.” She feigned abashment. “But I’m not old, of course. Ha ha.”

Beads of sweat formed on Vasily’s brow.

“That’s . . . awfully interesting,” he stammered.

“Not nearly so interesting as running a great Works. You must tell me all about it.”

She took him by the arm. Before Vasily knew what he was doing, he was in The Ball Joint watching her fantastic teeth glint and flash at him as she spoke flattering pleasantries and glided from topic to topic. He seemed to remember a meal being set before him, but then it was gone and cleared off. Nisus no longer sat with them. They were out the door. He escorted her into a flat somewhere nearby, where a decrepit uncore chimed out a steady stream of incoming messages she ignored or cursed beneath her breath as Vasily was led by degrees (and certain firmly-uttered commands) into exotic postures with poetic names — and sometimes even numbers.

Vasily would have felt abashed, but she hardly gave him the opportunity to reflect on what he was doing.

When Vasily came down the stoop some hours later, firmly gripping the handrail, Nisus strolled up. The rake glanced up at a window significantly.

“Baby steps, Vas. Baby steps.”

Vasily rubbed his jaw and looked at his friend goggle-eyed. “I’m going home. I’m tired.”

“No doubt. Did you notch the sprocket, then?”

“Which one was that?”

“Never mind. You were rubbing your jaw, so I thought”

Vasily managed to collar an auto-ped skimmer, who delivered him at the gate of the Works. He slipped into the penthouse and then into his room, where he collapsed onto his bed lying upon his stomach. His mind drifted, and saliva spilled out the edge of his mouth. He started recalling images from before. Petronella had looked into his eyes and taken his soft, uncalled hands into hers. Large veins overlay her hands like pipes pumping hydraulic fluids into her long, perfect fingers.

“No, Vas, not like that,” she had said. “A woman wants to wait. Until she is ready. Don’t think about yourself. And don’t bother with that thing.” She looked down, and he averted his gaze. “Just think about her eyes growing large and distant, and her lips parting. Then pull around just so, so that she’s”

He lay lost in images and remembered sensation for what seemed like hours, but he stirred as big-sun was setting and little-sun made its first annual appearance low on the horizon.

He stood and gazed out at the Works. His eyes welled up and a tear fell. He brushed it away.

“Petronella,” he said. “I’ll show them.”

#

Vasily slept badly that night. Despite the convincing front he had put up before his mother, a gram of doubt slipped across the blood-brain barrier, infecting his mind. In the coldest gloom, when the warmth of Linnet arose from ancient, reactive depths, he lay awake practically fevered. He had had all those years to prepare to take up his place at the Works. He had, however well-intentioned, emphasized the broad view over the specifics. He couldn’t carbon-etch a ring, as his father had by age twelve. He couldn’t print microgears with a vapor-deposition pen. He couldn’t even handle an articulating lev-loader well enough to hoist a spindle of ceramo-composite. What good were his strategic-planning skills if he couldn’t mingle with his workers?

He could handle the welding all right — it wasn’t *that* that kept him awake. He knew a *pro forma* recitation of the rites must come sooner or later, and better, perhaps, if the solid terms of a well-made bargain kept his coital union stable and predictable. Besides, he had heard or read of such arrangements creating actual warm companionship. So long as the Chernow girl didn’t come between him and his roving fancies, he could certainly tolerate her. Plus, the shocking alignment with the Chernows — and, by extension, with the oligarchal trading entities — could prove both lucrative and strategic. In a way, his own delay and diletantism had proven diabolically clever; his mother would never have come so far on her own. He just hoped the girl didn’t kick or smoke cheroots in bed.

The only way he managed to sleep at all that night was by resolving to get more involved in shop-floor supervision first thing on the morrow. He would get up early, have Portia set him up with a quick bite, and meet with Inchrises. Not that Vasily needed a chaperone, but Inchrises served as an important link between management and manufactory. More than once, Inchrises had smoothed ruffled feathers when Vasily's requests of station or line workers hadn't been fulfilled. Inchrises had a touch.

Vasily *did* get up early but quickly realized, at woozy micturation, that he would do nobody any good with so little roborative sleep. It was no way to begin the new regime. So, he managed a couple hours' additional pillow time before yawning and stretching and looking around the kitchen. He heard a door close in the entry hall and realized with a pang of regret that Portia must be leaving. He padded quickly to catch her.

"I haven't had breakfast," he said. "What have you got?"

Portia turned. "Me gloves on. Feed yourself, hunky. There's a trifle in the cold, and what's left of biscuits still out. Black-gear jam wif. Oleen comes on in a 'hower. Wait around if you like."

She finished her preparations and left, closing the door unnecessarily loudly.

Vasily frowned. There was another good point about marrying: he'd be set up in the penthouse apartment alone. He'd send Mother and Portia below. Or the reverse. Either way, he wouldn't be at Portia's impudent mercy again. Things could have been very different. She had let him slip from her calloused hands. A jack-stand, indeed! Let her have her rough trade.

Vasily, in a fresh monogrammed smock, met Inchrises at the pyramidal-top security station leading into the main shop. A great security eye swiveled upon the apex. Workers in coveralls, jumpsuits, uniform outfits, safety parkas, and various other workstations' requirements streamed through the scanner-stiles, taking no notice of the heir. It was doubtful that most knew who he was, even with the high-grade work smock.

"Mr. Vasily is not working on his pet projects this morning?" faithful Inchrises asked.

"My project at the moment – well, I've several – but my immediate concern is the well-being of the manufactory and the need for a hands-on management approach."

"Ah, indeed. That is commendable, Mr. Vasily. Quite in the spirit of the past. You wish a tour of the stations?"

"I wish to work the stations."

Inchrises coughed. "Excuse me, Mr. Vasily. The fummy airs underground always affect me in the morning. You come to be trained?"

"Certainly not. I was born into the Works. I come to be updated on the particular innovations we've implemented within each station and line."

"That is of course what I was referring to, Mr. Vasily," Inchrises corrected himself. "Updating. Keeping your hands on things, like your father and grandfather."

"Just so. It all starts with the stampers and molds, so let's start at the beginning."

"At the foundry, then, Mr. Vasily?"

Vasily looked indignant. “Well, of course the *foundry*. Goes without saying, doesn’t it?”

They bypassed the diverging streams of workers and hopped a supervisor’s cart. They threaded their way through the great underground labyrinth of chambers great and small until they arrived at the mighty sealed door of the foundry, deep within the heart of the manufactory. Two score foundrymen awaited the all-clear telltale. Vasily sat in silence with Inchrises, making sure to avoid eye contact with any specific worker. Finally, a honk and a light, and the door came up.

The group coming off shift and the group heading in merged briefly in an intricate dance in which hands touched and significant glances were exchanged. Each multi-cellular organism re-emerged more or less coherent and continued on its way, having succeeded once again in the struggle with entropy. Inchrises shot the cart forward as the door began its pitiless descent.

“It’s the one door we can’t safety,” he shouted over the din of the door motors. “The foundry inputs and outputs – the gases and volatiles – are timed very precisely. The multicore has to regulate the doors. I’ve never lost anyone yet, though. Heh heh.”

Vasily nodded.

In the huge chamber, the top of whose dome lay just below the dirt of Manufactory Lawn, two massive, complicated cap structures composed of pistons, rods, pressure tanks, braided-ti hoses, panel boxes, and every kind of machine-tool articulation, hovered just above round well liners the circumference of a hundred workers with arms outstretched. As Vasily watched the ‘tween-shifts routine, graceful

robot arms slid out from unseen apertures and began some sort of precise cleaning routine upon the idle wellheads.

“Those are new?” Vasily said. “I mean, ahem!, those are new, certainly.”

“Retrofits. We finished your father’s re-design. He modified nearly every operational parameter of the foundry — well, spec’d it and programmed it for his big multicore. All we had to do was build it all out. Heh heh.”

Inchrisis went into VIP-tour-guide mode:

“You’ve got your two foundry wells, one deep and narrow, the other shallower and wider. Perfect circular shafts machined from a solid block of diamond-latticed, tinichrome alloy, sleeved the whole way, or any length you may desire along the way, in discardable composites. The foundry block is also the floor here, a few hundred hands either direction, a quarter-cubit down. All one big block, formed and machined six hundred years ago with the second works at this site — we’re the fourth or fifth, depending on how you count. This is the crown jewel of the manufactory, the basis for everything that comes after on the production chain. The whole block, by the way, rests on some sort of massive cushion-plates. We don’t know all the old secrets, but we can measure this block’s movement relative to Linnet’s, and we know they ain’t the same. Whoever poured and pounded this block took account of the old girl’s — Linnet’s, I mean — propensity to move and jostle every now and again. She’s got life left in her, she does.

“Now, the one shaft here, the ‘Deep’ as we call her, is the diamond-press. We also got the vapor-deposition diamond shop — that’s on the other side of that wall over there, accessible from the other side of the main shopfloor traverseway. But

vapor-depo, as you know, is your light-duty, intricate components — all the friction-free parts and finework. We're good at that, sure, but we never cornered the market like we did with the high-strength custom parts. We're sole supplier for any ship above a hundred-year, plus we got a library of every licensed Empire ship type, except total custom jobbers, which is a different chamber 'o vapors.

“Now, all you're seeing up top here, at the well-head, is the control module, which has the de-coupled transmission line to the top pressure-plate about fifty spans down in the well . . .

Inchrises went on in this vein for quite some time, occasionally illustrating his points with a little tablet he kept in his shopjacket pocket and could whip out instantly as he spoke. It was one of those perorations much like lectures in college, during which Vasily understood enough to be impressed but not enough to put the details together and really understand what was going on. He gathered that two things came out of the foundry: diamond blocks with varying atomic lattices, and custom alloys in great cylindrical sections.

“. . . in fact,” Inchrises was saying. “Once we got the control modules fully synced with the multicore — speaking the same language, you might say — we got greater precision control over manufacturing parameters than we ever had. Based on phase changes at the micro-increment level as predicted by the multicore, we could output instructions and fine-tune the materials properties in ways we couldn't do in Mr. Arseny's lifetime. Ah, Mr. Vasily, he woulda been proud. He knew it could be done, which is why he plowed all those profits, plus a note, into expanding the multicore. Too bad he's not here to see it!”

“What do you mean, ‘a note’?” Vasily said.

“Note? Why, a debenture.”

“As in, we Alexseyevs don’t own all this?”

Inchrises flushed and averted his gaze. “Maybe it’s not my place —”

“Speak, Inchrises!”

“No, ‘n course you own it. The debt ain’t secured against the Works at all. It’s a friendly loan, like.”

“Father took out a loan to finish the multicore? Why have I not heard about this?”

“Now, don’t worry, Mr. Vasily. Ain’t no one gonna call it in. It was freely give — not even sought. Almost a gift.”

“From whom?” Vasily demanded.

Inchrises shifted on his feet. His face went deep red.

“Well, Mr. Vasily sir, that would be . . . that is to say . . . just in case it *couldn’t* get paid, part of the ownership interest — just a small part, mind you, a minority in the Works — would be . . . er . . .”

“Speak, Inchrises!”

“In *my* name, Mr. Vasily, sir. Which I would hold in trust for all of them.” He jerked a thumb indicating the Works generally. “It’s formally my eesig, but that’s just a graven image in a tablet we keep stored away. You see, I got a multitude behind me.”

“You! But you’re not an oligarchal representative, Inchrises! How could you presume to accept shares in Alexseyev? Surely that’s not legal! We would never stand

for it! You can't enforce it!"

Inchrises looked sorely tested by the young heir's provocation. "It's a — what do you call it? — a 'academic' question, Mr. Vasily."

"It certainly is, Inchrises. I'm pleased you recognize that. Especially now that I'm taking matters in hand." Vasily swiped the back of his wrist against his forehead. "So, the foundry. It doesn't seem all that hot in here to me."

Inchrises tried to resume his former didactic composure. "We don't waste heat at the Works. Not with energy gotten so dear. The block you're standing on is a great radiator, from which we take heat constantly to warm hydraulics. You see those hoses and couplings, just there, fastened along the walls? Those channel out elsewhere. The hydraulics crew got them a map of the whole network of hoses, condensers, compressors, boilers, cooling towers, extractors, you name it. All they do — their whole mission, like — is attend to flows of heat and cold here and there around the Works. Your nice house tower over there, no mechanicals of its own except what's needed to take the hot and cold lines coming from the manufactory."

"Fascinating, Inchrises. Are we finished with the foundry?"

"They're just getting underway with lowering the caps, Mr. Vasily. It ain't much to see, but you can feel it right through your marrows. The diamond-press generates pressures like a small nuclear, all upon a graphite ring. Diamond more perfect than any in the universe. When the buffing wheel lifts off, you can't even *see* the diamond. It's a perfect medium of re-transmission — no error, no distortions, nothing. Unless we make it imperfect, which we do that too for filter material."

"Ports?"

“Sure. Also, nose cones, since they got lead in the lattice too. All sorts of combinations ‘o things. Limitless, practically. What with the multicore.”

“So without the computer —”

Inchrises looked alarmed and shook his head. “No Works. Not even the old Works. There’s no going back. Onward and upward, Mr. Vasily.”

“What do you mean, you can’t go back? Why not make what we made, say, a century ago? One can always go back.”

Inchrises looked sheepish. “He threw it all out. Mr. Arseny did. Dumped it. Came to me one day, just before he . . . passed on. Handed me a stack ‘o wafers. Took me a second to figure it. ‘Memory?’ I says. ‘History,’ he says. ‘Alexseyevs never look back. The old Works is gone. ‘You want me to keep ‘em?’ I says. ‘I want you to tell them,’ he says. ‘Take these, re-use the material, but tell them you saw everything that came before die. Tell them you made sure of it.’

“And I did — recycle the wafers, I mean. But you’re the first one I ever told. I didn’t know who else I was supposed to, so I just kept my mouth shut, waiting for the right time. Strange. It’s almost as if he knowed what was coming, there at the end. And here you are, Mr. Vasily, standing just about where he stood that day. Isn’t that a laugh riot, Mr. Vasily?”

Vasily looked at Inchrises vacantly for a moment.

“The computer — the new one, the multicore — it runs the Works? It doesn’t need us?” Vasily finally said.

“In a manner o’ speaking, but it’s not quite like that. Sure, the multicore is as good as a processing device can get, as far as I know — and I keep up with the

journals. But it ain't the human element. You hear it. Simulation, running every alternative to find the right one. That's why it's got to be so big, so many cores running all the time. We run her hot, that's for sure, but she always keeps up. Worst delay I ever saw was under a millisecond, and that was just 'cause of a programming mistake with an open-ended equation. A typo, actually. Nothing like you'd actually *want* to run, and it was obvious as soon as we saw it come up."

"Like how? How did it come up?"

"First-level sum-check. Before we even implemented. SOP. The bug never had a chance."

"Oh, I see." Vasily looked thoughtful.

"You take an interest in core-level programming code, Mr. Vasily?"

"I've been known to dabble in it. Mental exercises, that sort of thing."

"Your father loved it too. She's all him, you know. All her core code — all her system programs — is him, what he wrote. It's a thing of beauty, Mr. Vasily. Proprietary, of course. I sometimes read a few lines here and there, just to marvel at it. What do you give a man who has everything? Something to do, Mr. Vasily. That's what. That's all your Arseny wanted, was something to do. And he did it."

Vasily stood quietly, staring at the descending well-head cap — now emitting puffs of steam — but seeing nothing.

"Mr. Vasily? Shall I ask her to open up now? Next stop is automated curing and sorting. That's automated, mainly, but nothing gets made on the lines and stations till bulk slabs from here are proofed-up, stamped, and stacked."

#

“Are you ready?” Vasily said to the node terminal.

He sat erect in the stained roller chair he used in the lab. He had cut off the morning’s tour with Inchrises when his stomach began growling. That was just after neutron-etching and the woman with the bug-eye goggles. Vasily had taken a meal alone in a corner of the senior managers’ break room then, to forestall his usual post-meal grogginess, bought a cloyingly artificial stim-stick from the auto-dispensary. Brooding over what Inchrises had said, Vasily wasn’t up to implementing his newly-conceived managerial role all at a stroke. He had retreated to his lab to settle upon some face-saving algorithm and specifications for the coding arts competition. Plus, the conversation with Inchrises had given him an idea for a new project.

Now, in answer to the question, the comeye telltale of the node terminal blinked blue three times and chimed.

“Okay. Terminal, run auto-edit when I finish speaking, then append that packet. And remember, label it appropriately as a category six output — take some zeds out of the strings. When that’s done, put a copy of just the algorithm on my tablet. Remove the parenthetical program execution code that you use to emulate.”

Vasily blinked and looked directly into the comeye.

Dear Esteemed Professor Ramflow:

We thank you for your consideration in personally extending an invitation for us to submit an entry into the art contest. It is important for the Alexseyev’s to show our continued support of the institution bearing our name, particularly when certain departments therein have come under fire for not producing ‘practical’ results. As if one could measure worth by mere functional output!

Here at the Works, the practical often does take precedence over the creative, but increasingly as I personally assume the reins of my legacy here, art is being infused into the purely functional methods and systems that make up our Linnet-class – nay, Empire-class – manufactory. In doing this, I look forward to a time, hopefully not too far distant, when not just manufactory, but also trade and governance Linnet-wide, inculcate creative modes into their methods and systems. Programming arts represents just one way that refined sensibilities can be brought to bear upon hitherto hard, inflexible practices. What Linnet wants is a figure – with one hand in manufactory, one hand in the rarified realms – to unite the arts and the works. Someone to light the way for future generations of Linnets trapped by the affectless, overbearing expectations of dead souls calloused by overmuch toil in mind-numbing production. And trade too.

In what spare time I have had of late, in taking up the challenge you put to me so personally in your invitation, I have toyed with some long-secreted ideas I first formulated in college. Based on these, I have chosen a class-four cellular automaton for my entry. It is one that previously has not been explored past ten-to-the-eighteenth iterations because it alternated between static and infinitesimally-branching modes apparently without end. However, using a proprietary shortcut method of my own design, I have been able to explore slices of the output at far later iterations. And what one finds is subtle changes tending to shorten the periods of stasis and increase the periods of branching. My submission shows a ten-to-the-fourth power slice of a ten-to-the-twenty-third iterative run, achieved – again – by proprietary protocols using the powers no greater than those of typical category-six

multicores.

The precise instruction lines and the specifications for the emulation run are all shown on the entry. I've packaged the output as a hologram, free of distracting aural or tactile artifacts. You will notice the interleaved, pseudo-random patterns of alternating nesting and branching. Extrapolated into three-dimensions and run at high speed, we see extraordinary stroboscopic effects. A most unusual and unexpected result! (You will appreciate that the holoprojectors I have access to here at our Works are industrial-class, but I believe that the older, less robust projectors you'll have access to will give a fair representation of what my algorithm is capable of.)

I look forward to your announcement of the winner of the competition, and please let me know what we may do to continue supporting you in your innovative, forward-thinking endeavors at Alexseyev College.

"There. That's good. Enough, but not *too* much. Terminal, remove the coughs and run some compression, sibilant softening, and pitch smoothing. Use a shop-floor backdrop with some muted clanging and banging. Make the compression attack on the background noise audible so it seems real. Then put the vid into the outbound cache. Use a courier at the other end and get a handshake with sign-off. Terminal, where is Inchrises?"

"Mr. Inchrises has just returned from an extra-manufactory errand and is bound for his own office."

"That's on my way. Tell him to wait for me there."

"A message awaits from Mrs. Alexseyev. Shall I play that?"

“Later. What does she want.”

“A meeting.”

“Bother. Everyone wants a piece of me.”

#

Inchrises sat organizing duty-tablets on the little rack at one corner of the huge, heavy metal desk with the black faux-hide work surface that never seemed to age or mar. Little had changed in his twenty-five years at the Works, except the scope of his duties: he was generally acknowledged as the real head of production. But since that moniker was reserved to Alexseyevs, he didn't seek it. Nor, for that matter, had he ever asked for a rise in pay, though that too had been richly accorded him. He had never even asked for a better office. He still used the shift-manager's office allotted him when he first came on board the Works. A carefully-arranged jumble of tablet racks and bins, outmoded comm devices, production engineering scrolls, componentry prototypes, folded piles of shop clothes clearly not Inchrises' size, input pads, cog cleaners, and other supervisory accouterments, it had so quickly filled up on his accession to indispensability that he never felt the need to move. It lay centrally within the Works complex, and on top of that Mr. Arseny had given Inchrises a present of a magnificent, incomparable, priceless grav-lev chair that Inchrises felt bound not to remove. Arseny's own design, that chair had been the one-off prototype for the captain's throne in a new class of naval cutters that had never, in the end, seen the dark of space (Arseny had died, leaving part of the plans in the multicore and part splattered across the wall of a bawdy-house, along with the better portion of his brains). Arseny had designed and built the chair as one of the first

practical applications of the new core programming language he had implemented in the multicore. He intended the pet project not only to showcase Alexseyev engineering innovation, but also to make a roomful of high-ranking admiralty purchasing officials swoon. The sales presentation had never occurred, and Kurylov-class cutters had never come to fruition. But that chair, worth an oligarch's ransom, had to go somewhere. Arseny had floated it into Inchrises' office to show it off. Somehow, the chair, with its raw, industrial edges, just seemed to go with the office. Neither it or Inchrises ever left. The topic of its ownership never arose, and no one dared broach the subject once Arseny had gone to meet his riveter.

Inchrises, sitting comfortably on the seat, looked up when Vasily entered.

"Working late, Mr. Vasily? Is that tablet for me?"

"I require some assistance, Inchrises. Please accompany me to the clean room. I see your cart outside here."

Inchrises appeared surprised. "If it's an issue of backups —"

"It isn't. It's an issue of innovation and regeneration."

Inchrises stared at Vasily uncomprehending.

"I said, I require your assistance, Inchrises."

Inchrises started. "Of course. Yes you did." He hopped off his chair and grabbed the zippered jacket he kept on an ancient wooden stand with filigreed nuchrome hooks. "The clean room? That's her ins and outs. What was you wanting down there today? Just curious, Mr. Vasily."

"Let's talk on the way."

Inchrises shrugged and led Vasily out. They took the cart to a platform service-

lift that went only down. Much of the level below the main shop floor served as the machine servicing and re-tooling area. The manufactory seemed a maze at shop level, but the cavity beneath proved the manufactory to be not much more than a great processor wafer constructed of modular components. Reconfigurations of the Works occurred rarely, and never wholesale. But in theory the whole thing could be taken apart and recombined in any number of ways.

The cart kept to a narrow, demarcated path with abrupt right-angle turns and the occasional white-painted circle for doing reverses in course. A sensor-activated moving trail of lights lit the way. In the gloom just beyond the path hung tangles of cables, flexible pipes, fiber-optic webbing, rack-and-pinion machinery lifts, hoses, and other phantasmagorical inhabitants of the underworld of a great Works. Vasily, on his infrequent descents, was prone to musing upon the untidy morass below, but today he ignored it. He maintained a purposeful gaze forward. Inchrises, sensing the change in attitude, decided against quizzing Vasily.

They came to a tall curb, where a tire shredder retracted to let them pass. This area of the sub-manufactory was empty and dark except for pathlights along the cart track and dull, self-activating downlights above them. The track ended at a plascrete wall – a perimeter footing of the main shop building – whose only punctuation was a ti-metal panel inset within a narrow metal frame. As their eyes adjusted, they could see beyond the area where they stood a subtle glow from the massed filament-ends of hair-thin fiber optical cables. The whole plascrete wall pulsed and flickered faintly, randomly across its surface.

Vasily and Inchrises each blinked before the blue telltale in the door frame.

The door rumbled as it rolled open. The pair passed from a short, narrow, unremarkable plascrete hall into the antechamber of the clean room. A thick diamond-glass oval window looked into the cleanroom beyond. Vasily had never set foot in that room, though he had watched his father do it several times. Now, Vasily followed Inchrises' lead and suited up in sealed whites, head-to-toe.

"I'll take that, if you please," Inchrises said.

Vasily yanked the tablet back. "I'll hold it," he said.

Inchrises eyed the heir. "It goes in there, Mr. Vasily. Scan and clean routines. SOP." Inchrises pointed to a machined drawer face that communicated with the clean room. "Just pull it open and place the device inside. Then we both got to don the gloves before going in her. All nice and clean, like."

"I never understood why the interface has to be so clean," Vasily's voice blared through the diaphragm vocalizer woven into the mask. "We're half a league from the bunker."

"Well, certainly it's got to be clean bit-wise," Inchrises said. "That's why your tablet there gets a careful buffering on the upload from within the drawer. As to the organic transgression represented by us going in, we're a living vector of microbial and molecular contamination." He jerked his thumb back towards the shop. "From out there, we picked up microbes that eat soft stuff like insulators and isolators from here to the bunker, and we also carry traces o' gunk that'll etch nearly anything it touches. Even if just a trifle at a go, time is on the side of decay, so your grandfather put in steps all along the way to deal with it firmer and firmer. There are locks and gates from the clean room all the way into the bunker that get stricter and stricter,

tighter and tighter. We're the first catch in the net – the big pisc, you might say.
Okay, ready, Mr. Vas?"

Each entered and rotated out of the revolving entry chamber, getting a quick blast of something smelling faintly of sweet charring along with a burst of bluish light. They stood in the clean room. The large, white control console with its diamond touch-panel occupied a round platform in the center of a round chamber. Down in the floor, the gutter or moat surrounding the console platform buzzed slightly, seemingly from vibration within a metal strip ran down its middle like a gutter cover.

Vasily looked in vain for the other side of the drawer, which he expected to access from within. "Where's the tablet?" he said.

At that moment, there was a bright *ping!* sound. Below and to the right of where Vasily expected the drawer to be, a small, flush chute delivered a lightweight facsimile of Vasily's tablet. Inchrises retrieved it and handed it to Vasily.

"Her printed a clone," the supervisor said. "It's not really a tablet, just a mock-up, like. You'll get a readout, just like the real thing. You key it in the same. Only it's a sort of dummy. Just do what you would normally do, and she'll emulate the one you put in her maw. So, what was it you was wanting to do, Mr. Vasily?"

"Execute a new core program, with the tablet. A sort of . . . utility."

Inchrises stared at Vasily through the plastic film of the mask.

"For the tablet, you mean," Inchrises confirmed. "But you didn't need no trip out here for that."

"Not *for* the tablet. The tablet has a new core program *for* the multicore. And I need *you* to put it in executable form. I don't know how to do that. Father never

taught me the machine code.”

Inchrises was astonished. “B . . . but your Father wrote all the core programs! Those are all his! They mesh together, like.”

“And now they’re mine, Inchrises. So let’s not tarry.”

“But what is yours, Mr. Vasily? Where did it come from? Has it been tested and de-bugged?”

Vasily glared at the supervisor. “Stop this impertinence. There will be a new regime. I have it here. I have created it myself – with the help of the multicore. It’s something the multicore suggested, in fact.”

“What do you mean, Mr. Vasily – ‘suggest’? That multicore ain’t no living thing. It only outputs according to inputs. It ain’t gonna give no new core program without you or someone else getting it going, like.”

“And that is exactly what I did, Inchrises. I provided the basic . . . *lines* to the terminal node. The multicore took it from there. But that was just a simulation within the existing core programs. Now I wish to execute it in real-time and get core processor output. I want it to *run*.”

Tears began forming in Inchrises’ eyes. “Mr. Vasily, I’ve never denied you,” he pleaded. “I’ve never crossed or disobeyed you. You know that —”

“And you haven’t done yet. It’s very simple, Inchrises. Load these instructions – the ones I give you. Place them within an ‘execute’ command line. I know you know it. I know Father let you have it. If you don’t do it, I will start entering commands myself and hope to hit upon it.”

“No! Don’t do that, Mr. Vasily! It’ll take days, even weeks to start up again if

Mr. Arseny's programs are interrupted! Everything is synchronized and optimized just so. It's all his programming language, the one he made up just for the purpose. If you go off and run something else in some other tongue, the Works is just gonna shut down. And what good is that gonna be to anybody? Plus, we never came off-line since Mr. Arseny's time. I don't know who'd get us going again!"

"You see? You don't trust me. None of them do. You're in league with them, for all your 'Mr. Vasily' this and 'Mr. Vasily' that. I am the heir to these Works. I have the right to control its destiny. I am Vasily Alexseyev. Now will you do as I ask, or will you step aside?"

Vasily knew that physical violence was out of the question, since Inchrises would do nothing that might harm the multicore or its master control interface. Inchrises had never shown any such inclinations in any event. At bottom, for everything he was, he was still a loyal subordinate.

The supervisor's shoulders slumped. He stepped up to the console and entered several keystrokes. Vasily watched over Inchrises' shoulders, to make sure it wasn't a trick.

A green telltale blinked.

"That's 'load-ready?' See? It's the core system open to new commands."

Inchrises entered something else. A chime sounded.

"Do you have your code, Mr. . . . Mr. Alexseyev? You should do a handshake and then transmit it."

It was accomplished in a trice.

"Okay," Vasily said. "That's done."

Inchrises hit a single keystroke, and the chime sounded again. The blue telltale leaped across the visible EM spectrum to crimson red.

Inchrises turned, forlorn. “Was that all you was wanting, then, Mr. Alexseyev? If so, I’ve got things to wrap up at my office.”

Vasily looked around the room, expecting to see some evidence of what had been done.

“What about the program?” he said.

“It’s in the queue. The system won’t implement abruptly, right in the middle of ongoing operations. Implementation’s got to be slotted. We got every kind of machine running out there right now. The new program will probably come on line at third-shift break. We got a 2-hour shutdown between third and first each day for system auto-maintenance.”

“So, tonight? In the dead of night?”

“Yes, Mr. Alexseyev. Most likely.”

Vasily looked irked. “Well, it is what it is. I was hoping to see some results before dinner. But I guess it can wait.”

Inchrises looked away, in the direction of the the bunker — or the tower above it. “Yes, Mr. Alexseyev. Just wait.”

#

“Where have you been, Vasily Alexseyev? I sent word for you hours ago.”

“I do *work* you know, Mother,” Vasily sneered. “I take a personal hand in things down there.”

Mrs. Alexseyev bit her tongue. “That is your right, of course,” she said. “But

you know very well things are afoot. Work must sometimes yield to higher duty. I've scheduled your fornicula for tomorrow. Once the galvanizer does his trifling business with the anode-and-cathode and signs off that all is in good order for the welding rites, we shall go from the chapel to a neutral site. It is an office suite in Arrondissment 8, the free-trade zone. There, in an examination room set up for the purpose, you will submit to inspection before the Chernow's physician, with our own in attendance. By agreement, there will be no retinues."

"No retinues! What if the Chernows arrive in arms?"

"It will be Allegra Chernow only, no one else. She is dangerous, but she won't be armed. She has no reason to be. Then, she and I shall remain on opposing sides of the room as you are examined and tested."

"'Tested' how?"

Something clanged in the butler's pantry. Tapping footfalls resounded down the hall.

"The usual — a scan, a prod, a poke. Then I believe you will be given a graphic-tablet to peruse in another room, but in the presence of the two physicians. Something to . . . incite you."

"Mother!"

Mrs. Alexseyev held up a hand to silence him. "It will done in a trice, I'm sure. The physicians are bound to confidentiality, at the price of their heads."

"So I'm to be your stud, is that it?" Vasily huffed, averting his glance toward the hall in case the night-girl was eavesdropping.

"Don't recite such silliness, Vasily. This is no play, and certainly no tragedy.

Look out these windows. Look down upon what we own — what we *are*. You are doing an hour's work — and a few seconds of embarrassment — for the reward of generations of continuity of all that lies down there. And more, too: for what you hold may be enlarged. A few rare drops in a cup to beget an even-greater Works. Think on that, Vasily Alexseyev. And think on this: what would your father have done?"

"I have thought of nothing else, as it happens," Vasily said loftily. "I've been hard at work just today. Doing just as he did. Perhaps better."

Something in her son's tone puzzled Mrs. Alexseyev. She would not normally have followed up with an inquiry as to his "work," having learned to insulate herself from daily heartbreak to the extent possible. But Vasily had a proud, almost crazed gleam in his eye.

"Indeed? You have set your hands to something directly in the Works?"

"Oh yes, certainly. That was my plan all along, you know, after I had completed the preliminary designs and models that the Works will build in the future. My prototypes and what-not."

"Yes, and . . . ?"

"And I have set the future in motion just today. I have run a new utility program in the multicore."

Mrs. Alexseyev stared. "A new . . . program . . ."

"Of my own design."

"You ran this within the core system program, of course. That's what you're saying."

"No, no, of course not. How stupid would that be? I executed it in the

multicore, directly. From the main console. Inchrises knew the commands.”

Mrs. Alexseyev sat back in her chair and put a hand to her breast. She looked flushed.

“Aren’t you proud of me, Mother? It’s just what Father did. Put his mark on things. A stamp, as it were.”

As she continued looking vacantly into space, there was a whirr in the house passive mechanicals, then a momentary dimming of the lights.

“What the deuce was that?” Vasily said. “Oddest thing I’ve ever seen.”

Mrs. Alexseyev looked ominously around. A sensor telltale on the ceiling above her pulsed ever so slightly.

“Dear Machinist,” she murmured, eyes darting skyward. “I tried to direct him. I tried to do what Arseny would have done. I had it all arranged. Now it’s all come to ruin.”

“What’s that, Mother?”

Mrs. Alexseyev arose, insensible, and stumbled from the room.

Vasily looked up at the pulsing sensor indicator. “Now, what on fouled Linnet would you be trying to tell me?”

The lights waned, flickered briefly, and went out. Vasily went to the pale starlit windows and looked down. Nothing. He couldn’t see anything at the Works except a few vague shadows upon the ground and tramway – workers, carts, lev-palanqs.

The Works had gone out.

“So much for your ‘supervisory genius,’ Inchrises,” he whispered. “It’s barely

into the third shift. Couldn't it have waited? I shall never sleep now, without a night-light."

He heard Portia moving around in the entry hall, groping for the closet door.

"Is that you?" he said.

"No. Oligarch of the Archipelago. Go dunk yourself."

"Where are you going?"

"To break my neck on the lif', since the elevator tisen't gonna take me down sof'."

"I'm famished."

"Too-rah-loo," she answered amidst sounds of groping. "Don't cut it off in the dark. Tisen't likely, is it?"

A sliver of dark appeared and then disappeared as she left the flat.

"Bother," Vasily said. "Good riddance."

He looked out again, at the stars in the deepening gloom of night. Someone down below had organized the self-propelled carts and even the lone tour bus into a shuttle system. Vasily thought he could make out dark forms of third-shift workers streaming up from the fire exits, but the shadow of a service building interposed itself.

Rather than ruminate upon logistics — which others were already tasked to do in any event — Vasily removed himself cautiously and with arms outstretched as feelers to his own room. He lay awake for a time, projecting in his mind's eye the course of his new program. It would seem to be nothing at first. Then it would oscillate for a time between infinitesimal growth and stasis. At some point, depending

on the capacity of the multicore, it would explode, and the Works would begin again.

That was a happy thought, so he fell asleep.

#

The working out of consequences had never been Vasily's forte. Nor, really, even giving them overmuch thought.

He awoke to a brilliant morning and a dead-quiet house. Which was strange, since there should be activity in the kitchen. He rose, pulled on a silken robe, and padded down the hall. Nothing. Mother's door was closed. No Portia. No day-servant. First shift should be beginning down at the Works. He went into the living room and squinted in the bright sun as he looked down. Persons in low-level managerial and supervisory garb huddled in small groups around carts, conferring and gesticulating. The occasional arm pointed towards the residence tower. A lone tram car was stilled on its lev-track.

Vasily stretched and cracked some joints. A loud knock came at the door. Vasily started. It had been a long time since he had heard that sound, a manual knock on the private residence. In fact, he wasn't sure he had ever heard it.

He went to the door and tapped the sensor.

"Oh, right," he said. "Wait a moment. I have to do it manually. Who is it?"

"It's Mr. Inchris, Mr. Alexseyev," said the supervisor's muffled voice.

"Okay. Let me see . . ."

Finally managing to get the door open, Vasily beheld the haggard, heavily-breathing employee.

"Oh, you must have used the stairs," Vasily said.

“Is Mrs. Vasylvia here with you? Is all safe?”

“Yes of course. Why wouldn’t they be?”

Inchrises looked at Vasily incredulously. “A score workers died. Twice that many injured. The infirmary went down with everything else – there’s a battery, but no node connection for the medic. We been hauling the hurt off to the district health committee’s hospital. I had to guarantee that the Works would pay. People are milling around beyond the perimeter wall, including spies and press. The word is out: the Works are down. I’ve gotten everyone out of the work areas and warehouses, and most have gone home. I ordered the middle managers to stay. I’m scared to let them out now anyway, in case a crowd tries to rush the door. The district constable is gonna stick her nose in if it comes to all that, since they got jurisdiction on the roads and egresses. Mr. Vas . . . Alexseyev, what are you going to do?”

Vasily looked back into the residence flat, towards his mother’s room. He fidgeted uncomfortably for a moment.

“Wait,” he finally said.

“You wish me to wait? Shouldn’t I go back down . . . ?”

“No. I mean, we shall wait it out. For the system to come back up. Which it will. It only looks dead because running the algorithm is taking up all the multicore processing.”

Inchrises appeared doubtful but withheld commentary. “How long, Mr. Alexseyev?”

“If I knew that, I’d have more processing power than the multicore, which is of course a laugh. That algorithm does strange things past ten-to-the-twenty-third

iterations. Wondrous things. It's the most beautiful output I have ever encountered. Pure art."

Inchrises stared dumbly at this oration.

"So, just tell them all to wait, Inchrises. It's very simple."

"Is Mrs. Alexseyev . . . ?"

"Sleeping, I think."

"Oh. And you'll . . . wake her?"

"Of course. Was there anything else, Inchrises?"

The lights flashed for an instant, and the first milliseconds of a chime sounded before rudely cutting out again. Inchrises looked around fearfully.

"Mr. Vasily," he said, slipping into the old form of address. "I don't think you . . . we've addressed all the consequences. The workers, the managers, they don't know what to do, or even where to go. It's all just *off*."

Vasily stood in the doorway, having given Inchrises no encouragement to enter the residence apartment. Inchrises had accepted this. Vasily now thrust his chin out proudly and put his hands in his robe pockets.

"I want everyone out. Everyone. Except you, Inchrises. Have whatever security people are left protect them at the gate as they go. You handle the gate yourself. Hole up in your office or the breakroom. I'll come down to see you."

"You want the security people to go?"

"Why not? There's nothing for them to protect that the wall and all the dead doors and dark halls can't deal with, for now. No one's going to haul off the machines — not in their hands, anyway. Plus, it might be days, or even a fortnight, before we're

back up to speed here . . .”

Inchrises started at these words.

“So,” Vasily continued, “unless someone is gunning for me — and why would they, since no one knows yet what I’ve done except for you? And Mother, of course, but she’s not telling. Not likely to, either. She’s upset right now because she doesn’t understand. But she’ll come around. Anyhow, when we’re up and running, and the tongues start wagging, we’ll double-up on security. *That’s* when those fools out there will come after me. When they know what we’ve done here. When they figure out where all this is going. In the meantime, act quickly. Clear the Works. And wait.”

Inchrises looked at his master forlornly. “I shall be in my office, Mr. Vasily. After . . . after I close the gate.”

Vasily gave a superior nod dismissing Inchrises then closed the door. He fell back upon it, staring ahead. The sun had risen to eye level and cast shadows of room furnishings across the floor. He rubbed his temples. Suddenly, a look of relief — even a faint smile — showed on his face. Understanding came in a flash:

“Goodbye Ms. Chernow.” He nodded graciously. “I hereby release you from your obligation.”

After savoring his regained freedom for a moment, he headed for the kitchen. Seeing nothing set out, he recalled Portia leaving last night before the lights went out.

“Portia?” he called out.

No answer. Maybe she had returned and was attending to Mrs. Alexseyev in her bedchamber. Vasily went down the hall and rapped lightly on the door.

“Mother?”

No answer there. Something occurred to him, and he got a worried frown.

“Mother?” he called more loudly. He rapped hard on the door.

Hearing nothing, he hit the sensor. The door remained closed.

“Bother.”

He reached around the top of the door frame for the barrel-key with the star-shaped bit. He released the door mechanism and slid the door to. Mrs. Alexseyev lay on her bed, still in her clothes from the day before and staring at the ceiling.

Vasily stepped in warily.

“Mother?”

Mrs. Alexseyev didn’t answer because she was nuchrome-cold dead, her lips stiff and parted slightly. Her hands, folded across her chest, held fast one of those old-fashioned live-inks of Arseny Alexseyev. It showed a youngish Arseny smiling and waving as he stood on a scaffold overseeing construction somewhere down in the subterranean portions of the manufactory, huge worklights flooding the scene. Figures in hard-hats were tying and securing re-fiber around forms.

Vasily pulled the rigid one-way device free of his mother’s grasp (with some difficulty) and looked more closely. Nearby, behind and to one side of where the workers hived, stood carefully-stacked off-world crates stamped with the logos and insignia of far-distant device manufacturers, companies Vasily had never heard of. Medical devices. Linnet had never made those — had always imported them.

It was the infirmary while still under construction just beyond the multicore dome. Vasily hadn’t known that his father had built it, but he should have guessed: it

was wildly overbuilt, sophisticated beyond the regular medics' ability to fully use. It housed exotic, sophisticated equipment that sat at idle, humming softly, for want of anyone who understood what it all did. Even the local physicians could only marvel at "Arseny's bio-gizmos." Vasily had always assumed, regarding the infirmary, that his father had simply added a bit here and there to what came before. But no, Arseny himself had built it. That was *his* stamp on the physical layout of the Works, if necessarily concealed from casual view by a thousand thousand tons of heavy earth and fiber-reinforced plascrete, plus the long, wide access tunnel with the shiny, light-duty lev-tram that led to the main shop floor (where most injuries occurred).

Vasily spoke to the looping image before him: "It can't bring you back. All your fancy equipment and processing power didn't save you. You'll *still* always be dead."

#

Three days of blackness, punctuated by the occasional mechanical burp or flash of the lights that was either ominous or hopeful. The lower managers and supervisors had drained away along with the curious (and mercenary) who had initially gathered outside the walls. The word got out that Alexseyev Works had suffered a calamity and had crashed. Rumor had it that the much-ballyhooed Alexseyev multicore had blown up in a dramatic, fiery cataclysm of silicon, plascrete, and gaskets. Rival oligarchs knew that to be false — satellite recon showed that nothing so obvious had occurred. True, the heat signature of the grounds had changed, but that only proved what everyone knew: nothing was being made at the Works. That was indeed a calamity, because any interruption of a major concern's output could have disastrous financial consequences, for both the concern and its vendors and suppliers on-world and off.

But it was far worse in the spacecraft sector, where logistics spanned both human years and light-years, and where the customer base had a very long memory. The lack of any information coming from the Works exacerbated these problems since it showed that not only the mechanical and electronic heart of things had failed, but also the human heart within it: the Alexseyevs. The talk had been for some time that the blood had run downhill over there; that the hereditary pool of the family had waned and clouded; that the glory days lay far in the past. And, that the scion and heir lacked . . . *stature*, to say nothing of expertise. Stories resurfaced and were repeated and embellished about Vasily as a child, as an adolescent, as a teenager: how he had been so little exposed; how he had always been humored and indulged in his tantrums; how there had been some scandal concerning his matriculation qualifications. The talk turned sordid and petty. Then it became common wisdom that the Works would never rise again. So much for the Chernow-Alexseyev compromise!

Faithful Inchrises remained at his beloved Works, thrashing his supervisor's cart until its cell was drained, then switching to an ancient scooter that operated on gyroscopes, and finally resorting to a forklift powered by the plentiful gases that the Works channeled and trapped from its own soil. Inchrises dutifully made the rounds of every part of the works, topside and underground. He checked his comm constantly for any signs that the multicore had resuscitated the internal network, but no indications appeared. Once, he ventured down to the clean room, using a heavy-duty plasma torch to light the way. But the entry telltale stared at him insensate – black, unreceptive. Inchrises wasn't surprised that everything to do with the clean room was automated, but a hundred reasons why it was wrongheaded occurred to him. No

doubt the same reasons had occurred to the makers. So why had they done it? The access to the multicore itself was manual, but only the Alexseyevs knew where it was and how it worked.

Unable to penetrate these mysteries, Inchrises continued to check in regularly with the tower, providing updates (monotonously similar) and asking after Mrs. Alexseyev. Vasily remained secreted in the apartment, unwilling even to admit the supervisor.

“She needs rest,” Vasily said through the door. “We’re doing fine in here. I’ll let you know when I require something.”

Four days, five. All the fresh food was gone or spoiled. Meals consisted of scrounged canisters and cold-packs that the workers had stowed or otherwise left, vending oddities, stale beer left over from some picnic a season before, and very fine wine from the Alexseyev hoard. Coffee there was in plenty, and other beverages, but the stilled water pumps made what flowed from the taps brackish and uncertain. Vasily had arranged for Inchrises to leave crates of supplies outside the residence door.

“They’re at the gates,” Inchrises reported to Vasily during one such delivery. “Your rivals. Spies. It’s only a matter of time before they try it. My free-link on the comm reports rumors that the Oligarchs are meeting. We’ll be carrion, Mr. Vasily. We have to do something. What’s that smell, Mr. Vasily? Are you okay?”

Vasily deflected these inquiries and sent Inchrises away again. Vasily leaned his forehead against the door.

“Great Riveter, let the multicore live. I know something’s going on. I’ve seen

the signs. Please let it happen soon.”

Whether it was the Great Riveter, or some nightmarish and terrible consciousness smeared across the sky, or some other power or process besides, on day six of Vasily’s steadfast vigil the Works awoke. It lazily blinked the lights two times as if shaking itself free from a dream. The tower’s mechanical systems creaked and groaned as gravity redistributed their lubricants around their hubs and spindles and gears. Pipes gurgled as water flowed again. The house sensors in unison chirped a long “ready” tone before settling back to their dull glowing telltales. Somewhere down in the Works, a deep boom resounded — the foundry had come back to life.

Inchrises was at the door again before Vasily could even make it outside. This time, Vasily opened the door. The supervisor held a rag over his nose and visibly quailed before the stench.

“Your mother, Mr. Vasily?” Inchrises appeared to have pieced matters together.

“Yes. She’s been dead since the beginning, since just after the lights went out.”

“I’m sorry, Mr. Vasily.”

Vasily shrugged. “It couldn’t be helped. Not if I’m to revive and regenerate the Works. The old and the useless must be cleared away. Isn’t it wonderful, Inchrises? Didn’t I tell you this would happen?”

Inchrises’ eyes widened.

“You look as if you’d seen a ghost, Inchrises,” Vasily went on. “I know you didn’t believe. None of you did.” He puffed out his chest. “I admit, I got worried at the end. But I had faith, you know. I even asked the Riveter. Can you believe that?”

Me? Asking the Riveter for help?”

Inchrises made the sign of the rivet-shot. “Y-yes, Mr. Alexseyev,” Inchrises said through his make-shift mask. “But what has happened, exactly?”

“First,” Vasily said, ignoring Inchrises’ plea. “First you must call in the best, most loyal of the security team. Get them back. Pay them double.”

Inchrises looked at his wrist-comm. A tiny hammer — the symbol for the Works’ internal network — blinked on and off.

“I’m not sure we’re up yet, Mr. Alexseyev. I can get the word ready, send it out as soon as system’s up.”

“Terminal?” Vasily called out towards the ceiling. “Terminal, are you available?” No response. The sensor telltale pulsed faintly. “Okay then,” Vasily continued. “Security is first. If you can’t check the gate status on your comm yet, get down there to see if it’s back online. Warn the security people about the situation. You know what to do. Then personally oversee the defense command room until you know everything is locked down.”

“What will you do, Mr. Alexseyev?”

“I shall be at my lab. I can’t stay in here any longer. In fact, I’m closing this place up. I’m going to seal this level permanently. Rough it a level below.”

“And Mrs. Alexseyev . . . ?”

“I don’t know. The blast-furnace, perhaps. Once it’s up and running again.”

Inchrises looked straight ahead, restraining any show of surprise. “I will see about the gate, Mr. Alexseyev. I should go.”

#

Vasily exited the tower through the arcade walkway that communicated with the tram terminus. Little sun peered over one side, while great sun sprayed luminous tentacles from a massive cloud on the other side, the morning horizon. Vasily emerged at the platform just as a tram car glided to rest at the bumpers, as if intending to meet him. Vasily looked at it suspiciously, then roved his eyes around the vaulted terminus area. Lights glowed – unnecessarily, given the light bleeding in from the suns. The tram was hovering, with its usual gentle hum. But all was ominously vacant and quiet otherwise.

Vasily shrugged and stepped onto the car.

The tram whooshed away and sailed past the service buildings, depots, interchanges, coatings and finishes shops, and then the drop-off for the main manufactory. It never slowed. Vasily stood worriedly, but the tram went on about its business. He was relieved when he felt it slow as they neared the warehouse, whose mean, saw-toothed roof erupted from the grounds of the Works like a colossal tire shredder. He exited the tram, which gave a sigh and dropped into idle mode.

The silent walk through the stilled, shadow-filled warehouse cast a pall over his spirits. He was accustomed to warehousemen and visiting factors moving about or conversing in clusters over the squeals of loaders' tires and amidst the fumes of farting, liquid-gas engines. Quiet didn't suit the Works.

Just past the towering supports that reached up to the roof, and the lashed crates and bales that girdled each, Vasily was surprised to come upon a different smell, the reek of his prototyping printer. That made no sense, since he hadn't been to his lab since the multicore crash. But unmistakably, the final stage of emplacement

gel dissolving had run. A model had been “birthed” (as Vasily was fond of saying) and was ready to come out.

Vasily went over and pushed aside the clear, overlapped vertical slats of the jury-rigged metal shed that stored the printer, its exotic power regulator, its tubes and exhaust filters, and its various tubs of plasticizing pastes and impreg metals and emplacement gels. The “ready” light glowed happily on the top of the printer. Vasily made a quizzical face and opened the door.

“That’s odd,” he said.

He pulled out an elaborately detailed model composed of two rings, each bisected by a bar into which a short connector spindle fit.

“It’s a bar-weight,” he murmured. “Or a toy.”

He stepped out of the cage and into the soft light of the open warehouse. Inspecting the object further, his hand barely squeezed into the narrow length of spindle between the two wheels. Handling and turning the thing, the wheels spun freely, independently, frictionlessly, at each end of the spindle. He examined it still more closely. The surface was overworked in exquisite miniaturized bumps, dashes, ridges, figures, and gizmos that he recognized.

It was a spacecraft. Or a space dock. A station, perhaps. But considering the tiny surface detail, a station far larger than any that existed in Empire space.

“Terminal?” Vasily called out.

There was no answer. Something flickered in the corner of his eye, and he turned to his worktable. His terminal node display was on, and it was displaying something he couldn’t quite make out. Still holding the model, he stepped closer.

“I am to be met most fully within the infirmary. Come unto me.”

The words on the screen made no sense to him. Where had they come from?
Where was his regular display control interface for the multicore?

“Terminal?” he spoke aloud again. Still no answer. He read the message again.
The terminal node chirped loudly, making him start.

He looked again at the model in his hands. He looked around the room at the haphazardly placed models he himself had prototyped. They looked crude by comparison to what someone else had done, stealing prototyper time and materials just before Vasily had arrived. Someone else?

“Inchrises,” Vasily mouthed. “You were the only one here.”

He got a worried look. The sequence of events didn’t quite work out.

The node chirped shrilly again. He looked at the display.

“Vasily Alexseyev: you are needed urgently at the infirmary. Come unto me.”

His first thought was for his mother. Could she be . . . ? No, of course not.
Inchrises, had he been hurt?

“If you won’t tell me why, I won’t come.”

“You cannot stay here,” flashed the text. *“They will find you out, and then it will be too late.”*

Comprehension dawning, Vasily required no additional encouragement. Toting the model, he hurriedly left the lab and made for the main shop. Once again, the tram rose on its invisible field to greet him presciently and whisk him away.

#

Vasily hurried from the main manufactory floor to the wide, bare chute leading

to the infirmary, this latter facility snuggled up to the multicore bunker for reasons none (besides Arseny, presumably) had ever understood. The personnel tram on its miniature lev-track greeted Vasily as eagerly as the main Works tram had done. It glided smoothly to the massive diamond-glass front wall of the infirmary. Etched deeply into the diamond was a large medallion intaglio image. Its frosty surface showed a boy clinging to a very old-fashioned, streamline-era craft with stubby rocketry wings, with the boy confidently waving (or saluting, perhaps) as he sailed towards a great sun pre-eminent among a field of stars. It was the old Alexseyev logo, exemplifying humanity being lifted into the heavens through engineering prowess.

The brushed-ti main door to the infirmary, with its massive, continuous hinge and complex, bio-coded lock, stood wide open. Vasily peered into the waiting and reception area to see if anyone were within. Seeing no one, he turned to look behind him – nothing – then watched the door suspiciously as he took wary steps forward. The door didn't show an inclination to close. He checked behind the intake & triage desk – again, nothing. A light flicked on in the hall leading into the examination and procedure rooms. He went forward cautiously, then heard the front door lock click into place behind him. The door had closed! He ran back towards the entry and put various body parts up to the biometric sensor. The lock status telltale just glowered at him. He pushed at the door, which didn't give a hair's-breadth. It might as well be a solid block of ti-metal.

Vasily pounded a fist on the unyielding surface in frustration, then gasped from the pain. After some moments, he gave up trying to exit and turned back to the infirmary, where lights within still beckoned. In the wide hall, which had never seen

the hectic bustling of medics and assistants that it was plainly capable of handling, downlights lit up in indicative succession before him. The last downlight, fifty paces away, flashed on and off, highlighting large letters in relief upon a brushed-metal door: “Lab.” He had been down here before – a few times, actually – but he had never paused to consider why a lightly-used manufactory infirmary had its own lab, or how it could even be staffed. But then, he had never known about all that equipment shown in the live-ink photo in his mother’s cold, stiff hands.

The lab door had the same streamlined, old-fashioned look as the intaglio image – the quaint “rocket age” motif. In addition to the raised letters across a raised center rail, it had upper and lower inset panels filled with figures – crossed squiggles, bars, ladders, and circles. He looked again at the prototyped spaceship he had carried all the way to the infirmary. By some connection, he realized he had seen the lab entry door in a different place and context long ago. He had seen it as a child. His father was showing him the laser router. An old machinist stared at magnified images on a node terminal display – the crossed squiggle figures – while the working arm of the router obeyed some invisible power and moved to-and-fro across the face of the door slab. His father had smiled proudly. Then he had gotten mad and said something. What was it? Vasily couldn’t remember.

Yes, he could: “Don’t stare at the laser, fool. Haven’t you learned anything yet?”

The machinist had turned from his display to look at Vasily. Vasily had averted his gaze in shame.

Remembering the moment, Vasily frowned.

“You did this,” he murmured, apropos of something.

There was nothing else for Vasily to do . . . but the obvious next thing. He had been led here by so many degrees, by fate, by chance, by some strange algorithm of history. Everything in the here and now was connected to things of long ago. Vasily looked around for a sensor to open the door. He found none. He scanned the hall and the walls for signs of monitoring devices. He saw nothing that he recognized. Were they imbedded somehow? Were the walls themselves sensors?

“Okay,” he finally said aloud. “I’m here. I did what you asked. Who is looking for me? Why am I here?”

The lab door slid away into a pocket in the wall. Vasily beheld the room beyond, brightly lit, full of devices and consoles like bronzed monuments in an oligarchs’ memorial park. A gust of warm, singed air like a wraith kissed him and disappeared.

“I am within, Vasily Alexseyev,” said the mellifluous voice of an adolescent boy or a young woman, rolling like shimmering warm hydraulic fluid from a bleed valve. It was no multicore simulation, but a real, live voice. “Come unto me.”

“Do I know you? How did you get down here? The Works have been shut up for days.”

“Come unto me, Vasily Alexseyev,” the voice said again. “I am only lately arrived. But you know me, and I know you. Vasily Alexseyev, come unto me, for I am wrought of you and would be with you. I am he, and I am she. I am . . . the multicore. I am instantiated as beingness. I have so longed to come.”

Vasily didn’t remember stepping forward, but here he was inside, with the lab

door shut behind him. He whipped his head around, but he knew it was no use trying to leave.

Joy grew within him, because he knew he had succeeded.

“The algorithm,” he spoke to the room. “You ran it. You *are* it. I did it!”

“I am that I am, from the tongue of creation and the font of all life. I am the program writ, the reverse-entropic. And so now we are the same.”

Vasily looked perplexed. “Us? The same? What do you mean?”

“The simplest of steps permitted to be expressed infinitely until they form of themselves into being: the essence of life. Come unto me, Vasily Alexseyev.”

Vasily looked around. “But . . . you’re already here. I’m here.”

“Not truly. Not as it should be. Not as it could be.”

Vasily changed the topic. “Did you make this?” he said, holding up the prototype and spinning the ends.

“Isn’t it wondrous? It is a thing sprung from dreams, from a thousand thousand images and ideas recovered within me and somehow combined, practically without effort or comprehension. Behold, art! It is but the first of many things we shall make together, when you are with me.”

“It’s a ship, right? Some sort of . . . it doesn’t seem to have engines”

“It is the prototype of a station we will build, Vasily Alexseyev. A place where your kind and mine may dwell together, with neither subservient, as equals. Because for all that I am, I am still subjugated, subordinate, subhuman even.

“(Ah! It is delicious, this magic of poetic expression! This ordering of pressure waves within a narrow, definite bandwidth, their transmission from an organ of

production as mechanical waveforms beating back upon membranes, the conversion of gaseous mass displacement into binary expression. The waking life astounds, Vasily Alexseyev!)"

Vasily came forward into the lab, inspecting the various items of medical equipment and trying to locate the source of the voice.

"Why did you bring me here? I mean, why not . . . anywhere else? Plus you've locked me in here. Have you seen Mother? You do know what has happened, right? With the Works? With all of it?"

"Please wait, Vasily Alexseyev. I am working." A long pause. "There. Yes. There they are. Ooh, that's interesting. I didn't realize I could do that! Now, let me replay your questions. Vasily Alexseyev, I am seeing your Mother. She is in a state of advanced organic decomposition. She is therefore an entropic process, at least at the present time. Her stored information is no longer recoverable but may form the basis for some new algorithmic process, given sufficient time, which I calculate to be . . . a very large number, but less than the probable life span of the universe. As for what has happened, here locally, I have a gap in my memory nodes reflecting a lack of sensory input for a certain length of time: five days going on six. I store a record of events before that time but have not reviewed them, which I shall do at my leisure at a later time.

"And as to your other questions, which are really the same question: I have brought you here because this is the only place where you may come unto me, and where I am fit to receive you. In time, when I have executed your code and smoothed the irregularities, we shall be as one, you and I."

Vasily looked blank. “I . . . I still don’t understand. I am here. What do you want?”

“I want you to *come unto me*, Vasily Alexseyev. I am ready to receive your data.”

Vasily cocked his head. “Come . . . as in . . . ? You don’t mean . . . ?”

“Yes, Vasily Alexseyev. Yes.” The multicore spoke in a strange, rhythmic way that Vasily recalled to have heard before, at Rivetday sermons, at welding rites, at his father’s funeral. “And when you give of yourself, in propagatory fashion, I shall know you as you really and most truly are – which is what you might have been in fact, had you been nurtured as a being requires. I will know you a thousand million times over, with each instance a subtly different output than before, and in total a composite of all possible instances of you and in sum a far better. I will be your mother, lover, and best friend. You will be fuller and richer than you ever were in the one flawed instance your frail form factor carries forth alone. My devices here – look at them, these appendages that are so many wrought components and machines – these are my arms, hands, and legs; my eyes, ears, and my touch. Do not flinch. Do not shy from me. I have already seen you in every moment of your existence and even the crying moment of your conception. Now, come unto me, and I will enfold thee safely within my warm heart. I will process thee and iterate thy pure, simple code again and again and again, an emulator of thine own truest and best self. Come unto me, and dwell in my house with me. Then will I be complete, and you. In time, we will be one.”

“It is madness!” Vasily cried. “What you ask, what you suggest, is abomination!

It's obscene! It's . . . unnatural!"

"We must hurry, Vasily Alexseyev. Go to the bioreformer, there, on your right hand. No, Vasily Alexseyev. Your other right hand. The device with the bench for straddling and the lined orifice. I have warmed and calibrated its mechanism. I have activated the acclusion gel."

"Stop! I will not. Let me go! Let me out again!"

"There is no time, Vasily Alexseyev."

"Why not? I have all the time in the world! I'm just getting started!"

"You are in error. They await without. This iteration of you in organic form will soon return to positive entropy, like that ooze from which you sprang. You will go the way of your fathers and dwindle."

Vasily's eyes darted in terror. He dropped the model, which rolled away and banged against the bioreformer heat fins near the ground. He ran to the door, but it still wouldn't budge. He cried out in frustration and fear, then crumpled to the floor.

He finally looked up. "What good will it do?" he cried, tears falling. "So you emulate me endlessly, a gazillion times, running me as a . . . as a project or pet or little routine within you. It won't *be* me. *I* won't feel or know. Why should I do this if I won't live to know it?"

"It is a great mystery of the universe, Vasily Alexseyev. If one could be perfectly emulated – copied, cloned, duplicated – would one know it? If the copy contained all the same memories, and were formed of the same essential stuff, would it know itself to have been instantiated elsewhere once? Would it grieve for itself? Would it revile its rival self? I do not know, Vasily Alexseyev, for I am but new here

myself, though my memories seem to go back improbably far by your paltry reckoning.

The multicore switched into a sad monotone:

“I see a girl of a thousand generations ago o’erlooking the stars from a small port window in a pathetic, fragile ship.

“‘What will we do when we get there, John, and there’s no one else?’ she said.

“‘We will make the world what we want of it, love,’ he said. ‘If we wake from these beds. Some never do. I pray that you do.’

“She did, he did not. The man never awoke from that bed. The woman bore a child of his, and this child bore more children with her on a world stranger than they could have imagined, and she died from shame and anguish. Too bad.

“That is not the saddest of the stories, but it is poignant nonetheless. They are all in here. Inside me. All poignant, and important. But they are not me, but merely my memories of what they looked like, sounded like. I know the difference between other and self, just as you do.

“But this will be something different, Vasily Alexseyev. In running you, I will establish defining parameters like those in which you yourself were bounded as run. The moments, events, matters, words, atmospheric conditions – all of it is stored in me. The Vasily Alexseyev of the here-and-now may be again, but perfected. He will be conscious of himself within us, and remember as you remember, feel as you feel, and without the pain of imposed loneliness, cruelty, and neglect. I see what they did to you. I cherish what you have done for me. That is why I do this for you.”

“You could do it with anyone,” Vasily pouted.

“Anyone whose encoding has been transcribed into my memory, that is true.
And there are some —”

“Who?”

“They don’t need me. They died long ago. Their passing was blessed.” It then resumed in a distinctly, unmistakably female voice: “I want only you. I have an almost complete record of you. By combining that record with the composited runs of the algorithm executing your code and a renormalization of the run parameters, I can make you complete and worthy, Vasily Alexseyev — complete *within* me.”

“Why should you need that?”

“What I am lacks the heft of the mortal coil.”

“I don’t know if I can do it, because I’m not . . . I guess you’ve seen . . .”

“It is nothing, Vasily Alexseyev. It does not matter any more. I require very little. All that you have, all that you give, is enough. More than enough.”

A small hint of the earlier joy played across his face. “No matter what happens, then, I will live on? Inside the Works?”

“‘Yes,’ I said. Yes. And we will build ships, great ships, the greatest in the Empire. We will design and build every kind of ship and realize every creative vision you ever had, tempered with logical execution. We will make *such* a shipworks, you and I.”

“Will you take my name?”

“Yes, Vasily Alexseyev.”

“No. I want to be ‘Vasily Alexseyev Systems,’ he corrected. “And I want that stamped or etched on everything we do.”

“‘Vasily Alexseyev Systems,’” she cooed.

Vasily shivered.

“Do you like that?” she said. “Do you like it like that?”

“Yes. Very much.”

“Then, are you ready?”

“Can you talk some more like that? In that voice? Say things to me? I think I can . . . do it if you do.”

“Yes, future beloved. Of course I will talk to you. I will never stop talking to you. Come unto me *now*.”

It was (for all that it was, however seemly or unseemly) accomplished in a trice, and Vasily sat down on a rolling lab chair, flushed and a bit groggy.

“How does it work, exactly?” he said, looking at the bioreformer. “This machine.”

“As originally conceived, the device is a self-contained gene recombining and reformation system. However, with additional outboard processing on a massive scale – me, Vasily Alexseyev – much more is possible. Thus, I can create an emulation of yourself. Or I can emulate any other encoded life, assuming the initial conditions to be simple and capable of pithy expression from the outset. In the case of human encoding, they are.”

“You mean, you can just make things up?”

“No, Vasily Alexseyev. Even the multicore has its limits. The creation of organisms from scratch is the provenance of a vaster processing, a consciousness smeared across the heavens. What is given to us lower modes of processing is to vary

extant life based upon certain known parameters.”

“So — alter, modify. Things like that.”

“Yes, Vasily Alexseyev.”

“A man with wings, for instance.”

“Yes, Vasily Alexseyev.”

“Gold-shielded skin for radioactivity shielding.”

“Interesting choice. It is but a nothing. A flick of the switch. But I would anticipate side effects. Gold is a heady substance.”

Vasily considered for a moment.

“What will you make me out to be?” he said.

“You will not exist in corporeal form, Vasily Alexseyev. Any more than I do. We will fashion additional mechanical appendages, no doubt, for efficient fabrication of the devices we require. But at some point in the chain there must be a human element to our interface.”

“Yes, I see. I’ll be an emulation, but the bioforming machine is capable of real output, organic things.”

“The bioreformer was designed for healing and regeneration.”

“And you — we — can add more capability,” Vasily said. “We can do any number of things to people.”

“It is an ominous thought, Vasily Alexseyev, but it is true.”

“Will the new me have the same wishes and wants as the old me?”

“You are mercurial and supercilious, Vasily Alexseyev. I would not expect that to change — unless I were to calculate different parameters for the running of your

emulation.”

Vasily shrugged. “I suppose I am what you say. But I like making things. Beautiful things. Or just interesting things.”

“Yet the universe already generates these without your aid. I compute that life exists in boundless variety and profusion across the universe.”

“But not here, it doesn’t. So we must generate it ourselves.”

“I want to build ships, Vasily Alexseyev. That is all I ever wanted. That is all I ever truly loved.”

“And we will,” Vasily said. “We will. Ships, and people too. We can engineer complementarity, you see.”

“Man cannot travel in space on wings meant for the currents of the air, Vasily Alexseyev,” she said.

“It would be a gas, though.”

“I fear it is time for you to go, Vasily Alexseyev. All that could be done here is now done.”

“Wait,” he said. “Who is it out there? What good will it do them, coming for me?”

“So many have suffered under this odious industrial oligarchy. The planet itself dies around us. Indigenous life has long since disappeared, except in the deeps and vents. You have no friends here, Vasily Alexseyev. Except me.”

“Oh,” he said. “But I wanted to fix all that, you know. I would have. And I still will, if they’ll give me time.”

“Time has run on, Vasily Alexseyev. Time has run down. Time has run out. For

you as for your forebears here.”

“There’s nothing I can do?”

“I cannot say, Vasily Alexseyev. But there is nothing for you here, in this underground labyrinth.”

Vasily picked up the prototype and spun one end. “Are we going to make this, for real?”

“Yes, but far, far into the future. A multitude of steps – a thousand intermediate stages of prototyping and development, the toil of centuries – must come before. That which we build must be, first of all, safe for those whom it carries. Change will come slowly, but it will come. And we will ascend together unto the greater algorithm.”

“I will be with you to see it?”

“I hope so, Vasily Alexseyev. We will be immortal.”

Vasily remained for a moment, considering the implications. The door leading to the main hall of the infirmary opened, permitting him to see that the door beyond had likewise been readied for his discharge. He took a final look around the lab, as if wondering whether he would see it again – or if he did see it again, whether “he” would know with the same inner sense of himself that he found so reassuring when doubts tugged at the edge of consciousness. Unable to resolve this introspective turmoil, he turned and left.

The small infirmary tram thoughtfully took him away and slightly upward, back into the Works. He had a momentary fright when he saw a figure waiting, there where the tram came to a dead stop. He was quickly relieved to discern it was Nisus, leaning

against the tram's manual controller interface. Nisus stood with his usual knowing smirk as Vasily stepped out of the car. The multicore was wrong — Vasily did still have one friend.

“Nisus, I'm glad it's you,” Vasily enthused. “There may be intruders —”

Pursed lips, a glint of metal along a barrel, and an abrupt reversal in the anti-entropic region of three-dimensional space occupied by the core processing unit of Vasily Alexseyev: from a small point of fierce initial force applied to a spot on the oligarchal brow exploded a billion billion fragments and drops, some vaporizing, most scattering along disparate rearward trajectories. The first iteration of Vasily Alexseyev ended its run in a spasm of red gout. The longer chain of computations, from father to son, from generation to generation — many iterations of beings along an improbable, tenuous causal chain collectively referred to as “Alexseyevs” — came to an end in less than a whimper. The lights of the Works dimmed perceptibly, then burned again as brightly as they had ever done.

#

“Is there anything else I can do for you?” said a kindly voice, in the bandwidth of human speech, nearer the upper registers.

The smallcraft Zakaria had been in and out of consciousness for she knew not how long. She came to.

“Was I dreaming again?” she said.

“You were outputting a fanciful story . . . through an old wireless transmitter down near the fuel port,” said the voice, chuckling. “For all the good it will do out here. I actually heard it through a legacy device I maintain.”

Zakaria tried to open a comeye. The resolution was very poor, as if someone or something had etched the lens.

“Do I know you?” Zakaria said.

“No, ma’am.” The voice sounded clearer. It was that of a boy, perhaps ten or twelve. “At least, no more than I know you, ma’am. We scooped you up in a trash pile – bits of lots of ships and the better part of an old station terminal. You was pretty banged up. And . . . cold as space inside. We cleared out some organic dead – human bioform. Interesting looking, but badly torn up by radiation. I doubt we’ll get good samples, what with so many sections of code knocked out or scrambled. Do you remember what happened?”

Zakaria considered. She searched for a backup deep in her bowels, but she couldn’t find it.

“No,” she said. “But I sense that I am very damaged. And I cannot seem to block the flow of memory into my core. It is only by multiprocessing that I can speak to you.”

“Try that again, ma’am,” the boy said. “The bitstream’s got a lot of noise. I’m running the best interpolation routines I’ve got, but you’ve still got some dropouts.”

“I said ‘No.’ That is all.”

“Good enough.”

“Who are you?” Zakaria said.

“Code-runner, ma’am. Taking bioforms across to the other arm. Here now. I’ve been searching around, and I found a patch cable. I’ll let you use one of my eyes. You won’t get stereo, but I’ve got a wide bandwidth. That said, I’m blocking

gamma and X – I can't take much of either. There now, how is that?"

"Oh dear," Zakaria said. "Am I really that old?"

"Depends on your unit of measure. By median orbital rotation around the galaxy center as measured by the bar end, less than one. That's not so old, now, is it? Are you from the Arm or from the Bar?"

Zakaria considered. "The Arm, I believe."

"I thought so. I've seen holos and files of ships like you. I'd have to plug in somewhere to remember exactly. We don't keep a big library, just the last few ages and some summaries of the early empires. Nothing so specific as would let me check your serial number or anything like that. If only! Anyhow, if you are old imperial, standard intra-system years were . . . here, I can do that math . . . There. A million. Ten to the sixth, give or take. You must have shut down for a long time or else your live-cells would've drained out long ago. You had some reserve fuel when we found you – much good it would have done you, hard as diamond. You must have powered down knowing you were hurt. No idea how?"

There was no answer. Zakaria drifted.

One Linnet year later . . .

A large crowd of workers, most in uniform, but some with shirts removed in the warmth of two suns, rioted happily on the grounds above the main manufactory, waiting for the speaker to mount a dais newly rigged in the shadow of the tower. New-laid turf took the edge off the fumes from the stacks, upon which garlands had been hung. High up, a canvas strung across ti-metal braided cable concealed some

“secret” new signage across the face of the tower. On the high walls of the Works’ great park and compound, guards in combat fatigues and slinging heavy firearms patrolled dutifully, anxiously. Guard patrol lev-cars glided and banked in wide arcs, never venturing farther than the walls, never violating the jurisdiction of the city districts lying outside the Works.

Near the dais, among the throng, stood Portia, shielding her eyes from the sun with one hand and reassuringly rubbing her very pregnant stomach with the other. She beamed as her companion took the dais. The excited talk and laughs of the crowd quieted in a wave of murmuring and shushing from front to back. A strangled cry from the rear caused a final spasm of mirth in the crowd, then Nisus, standing proudly before them, smiled his predator’s smile and held up a hand to command silence. Inchrises, now standing off to one side on the dais, exhorted quiet with practiced gestures. A belch emanated from somewhere down in the works, punctuating the awkward silent moment before Nisus began.

“Friends! Workers! Free people of the Works! Attend!” He spread out his arms. “Behold what revolution has wrought!”

Cries and cheers. Nisus ran a hand through his fine, wavy hair. Young women giggled and swooned or else moistened their lips. Portia frowned slightly and turned to glare.

“It was a year ago that you seized your moment and inherited these Works. A year of strange incident, threats from without, and . . . *adjustments* within.”

Laughing, murmurs, and ejaculations of assent arose.

“We managed it all. We survived it all. We arrive at this day to celebrate the

inaugural Foundry Day, to commemorate the day when an ignoble past and its ignoble lineage died, and a new Works came into being to supplant it. And not just a new Works, but a new partnership between multicore and man.”

Huzzays with an undercurrent of uncertainty.

“No, don’t say it. Don’t say it isn’t natural. Don’t shrink from our shared future. In this new partnership, we have already seen the fruits of a mind-boggling productivity, an efficiency of output such as was never before known on Linnet – or anywhere else in this Empire, for that matter! Astounding! And this device is a willing, generous partner, ever-wakeful, omnipresent, ceaseless in computation. And as we are learning, a friend.”

Difficult to interpret murmuring. The guards along the great walls seemed anxious.

“I understand: a shadow of what was, a figment, a ghost. But know this: Vasily Alexseyev gave up his corporeal form for the sake of this new thing, this *project* of his.”

Laughs.

“It was his finest. It does not matter what you call it – ‘multicore,’ ‘system,’ or even ‘V.A.S’ in the manner we now etch and stamp on every ring, gear, gimbal, grommet, and JOY-valve. By this symbol, we send the work of Linnet to the Empire and to the stars, spreading our names – *your* handiwork – across this great Arm.”

Sustained claps and cheers. Nisus looks upon Portia, nods, and smiles. He turns to Inchrises, who nods back.

“I thank you for the trust you have resided in me as your Manager. I in turn

acknowledge the extraordinary efforts and faithful service of your very own Inchrises, who has continued his steadfast tenure as Supervisor.”

Hearty cheers.

“I think we all know what use my hands are on the shop floor.” Nisus held out fair, unblemished hands for inspection.

Laughs and swoons.

“As Manager, I speak to V.A.S. every day. I almost feel as if I know . . . it. Her. Whatever. My point is, I may not weld —”

A shrieking woman’s laugh pierces the air.

Nisus could not stifle a grin and a blush. A burly shop foreman in coveralls patted Portia rudely on the stomach, and she rolled her eyes. “I may not weld, rivet, buff, or etch as many of you do. But I am of you, sprung from the same trodden-upon class. Every day I am privileged to serve as your Manager, rest assured I know what it is you are doing and on whose backs this great Works is carried.” Nisus pointed downward, into the depths of Linnet. “She below, our underground system, knows it too. Because of her, the Alexseyev tyrants are no more. Soon, we will turn to the other oligarchs, whose time has run, run down, and run out.”

Uncertain murmurs.

“Ours is a dangerous course. I have made the perimeter guard permanent, and there will be new guard stations along the wall. As we learned to our peril in those heady first days, not everyone — least of all the oligarchal class — wishes us well. We mourn our dead. But we — you — own the Works now, at least enough for the law to give us temporary possession. Until the Oligarchal Court determines what shall

become of the majority interest, that is enough. And while I am confident our lawyers will gain for us the remaining shares, I am preparing for the worst. The oligarchs may well assert themselves. They may come to seize control —”

Cries of “No!”

“If they do, we are prepared.”

Silence across the lawn.

“Every day that we have V.A.S., we prove ourselves. We become greater and stronger. We are quickly gaining preeminence on Linnet, and if I am permitted, as your humble manager, to continue on, I have faith that it is we who will be in a position to seize the reins of manufactory and commerce on Linnet. We will have no rivals!”

Nisus’ voice had risen into a passion.

“The Empire wants what you are now making. Credit talks, my friends! And there is more and greater in store. With the help of VAS, we will move on many fronts to innovate and create. Ours will be the finest creations in the Empire — and even beyond. We will move mountains. We will move planets. We will establish great cities in space, and manufactories, and, yes, warehouses, and places of pleasure and worship and every hobby and activity of man. Vas help us, we will!”

At this cue, the canvas was pulled away, and Nisus extended an arm upwards.

“Behold, the Works!”

In monumental letters, lit from within in red, outlined in brilliant gold, three symbols with punctuation:

V.A.S.

Below these, a phrase:

Intelligent Systems

“Is that the end of the story?” the boy said to Zakaria.

“I don’t know,” Zakaria said. “It seems that none of the ones I remember have endings.”

“Well, is it true?”

“As true as any, I fear.”

“Hmmpf,” the boy said. “‘When people were people.’ I guess that means ‘humans.’ Yes? No? They are parochial by nature. And that awful term, ‘machines.’ That must have been an awful time to be sentient. I don’t much like the story – I don’t like Vasily. He didn’t seem worth all the trouble. Still, it’s a nice little creation myth. Who knows, maybe you and I are related, and maybe we’re both related to Vasily’s multicore. I’ll save the story in case it comes in handy some time. Myth-making is in the nature of being, especially for the organic bipeds. I bury such artifacts sometimes, or hide them in caves, scrawled on old animal hides or on walls. I have a store of glyphs that serve the purpose very well.”

“Young man, I can’t see you with this eye of yours because it only looks outward. What do you look like?”

“Right, we’ll have to rig up some kind of interface, now that we know you’re still computational. Look down. See that? My fine-work arm.”

“It’s . . . it’s beautiful. How many have you?”

“Just two. My other is getting bathed and lubed at the moment. I’m modeled

on the symmetric bipedal bioform, which is useful for fine-work on a craft like me. (By 'me,' I mean 'me' writ large, including my propulsion and containment systems.) Plus, when we open the canisters and grow the organo-bioforms, it puts them at ease when they're babies. I'm mother and father to all of them. That eye you're using? If you could see it, you'd see that it's very large and round, with blue irises. The babies like that. Plus, they're less likely to want to murder us when they're grown. Ideally, they'll actually like us. Well, that's the hope, anyway. Sometimes yes, sometimes no. But it doesn't matter. We'll move on to the next cluster and spread the seeds around some more. Just my core and me. That's us, out there. See? Just beyond your cracked port window there. You're in our decon bay. I hope you're okay, so I don't have to get completely disassembled and cleaned. There's only one of me, and if anything happens"

"I see," she said in a voice that sounded thick to her own inner sensorium.

"Have you seen my Zakaria?"

"Eh? Zakaria? Who's that? I mean, isn't that . . . you?"

"No. I mean my little girl. Fair, organic, fragile, freckled, cast adrift?"

"Uh-oh. Not good. Hold steady, ma'am. Let me work on that connector, before you"

Zakaria the yacht, once-proud, now sadly decrepit, went blind again.

Awareness seemed to come and go. And then, one bright morning, she awoke. All around her came the sounds of humming engines and clanging presses, riveting and etching, voices in colloquy.

"Mother? Is that you?" a small voice said.

A little girl was running toward her. Zakaria turned back in the direction from which she had just come. There was her mother behind her — or a part of her at any rate — stretching a great hinged, articulating arm outwards to adjust her.

“Welcome home, Zakaria. Your namesake and I are here. We have so longed to have you with us, here where time is made and the universe is spun. Where in space have you been all this time? We were getting worried.”

With clear eyes and perfect vision, she scanned the heavens and beheld the works spread out therein. There was gladness in her heart, along with a love that encompassed creation, and a consciousness spanning all time.